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**THE RAILWAY GAZETTE**
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### Railway Rates and Costs

SOME weeks ago the City Editor of the *News Chronicle* told his readers that the railways were considering an application to the Government for subsidies on low-grade traffics to compensate them for loss of revenue expected from a scaling down of railway rates on high-grade traffics, which, in his view, would be consequential on the implementation of the recent agreement between road and rail interests. Recently, he returned to the matter, and questioned whether the railways had at their disposal the data necessary for the construction of a scientific charging system under conditions of competition. By this, he apparently meant the costs of carrying particular classes of traffic over particular sections of their systems. Urging that it is essential that the country should have some real knowledge of what are the costs of the various methods of transport, he suggests a formal inquiry, perhaps by Royal Commission, into the transport system, with particular reference to costs. Whether it is vital that the actual cost should be known of transporting commodities over every section of line, seems open to doubt.

* * * *

### Mr. John Shearman

The retirement of Mr. John Shearman, of whom a portrait and biography appear on another page, from the position of Road Motor Engineer, L.M.S.R., severs a connection of over 25 years with the road transport activities of that company and its predecessor, the L.N.W.R. Mr. Shearman has held the position from which he now retires since 1925. His earlier career with the L.N.W.R. had been mainly on the locomotive side, but on his return from active service during the war of 1914-18 he joined the Road Motor Superintendent's Department. At that time the road fleet of the L.N.W.R. consisted of about 200 vehicles. At the formation of the L.M.S.R. the combined fleets of the constituent companies numbered some 1,450. At the present time the L.M.S.R. fleet numbers 4,662 motor vehicles and 5,357 trailers and motor-driven appliances. Mr. Shearman played a large part in the preparation of the original design, and the introduction, of the "mechanical horse." He is succeeded as Road Motor Engineer by Mr. W. E Yates, hitherto Assistant Road Motor Engineer.

* * * *

### Re-Conversion on the Railways

Recently, the City Notes in *The Times* dealt at some length with the changes which have occurred in the flow of railway passenger and freight traffics. In relation to the former it commented favourably on the improved punctuality of passenger-train running, and pointed out that the really substantial increase in passenger travel, compared with before the war, had not been in respect of season tickets or workmen's tickets, but rather in the increase in the average distance travelled. Last year, the average distance travelled on other than workmen's and season tickets had been more than double that of 1938, which confirmed the impression that it was primarily the week-end and long-distance traffic which is higher than before the war. Thus it helped to make it easier than had seemed likely twelve months ago to resume the punctual running of business trains, but there were still 11 per cent. fewer vehicles available to carry the increased traffic. The number of passenger-miles now being run, though about 15 per cent. above that in 1945, is still only some three-quarters of the pre-war figure, which means that many more passengers have to be carried by each train.

* * * *

### Freight Traffic Movements

Freight traffic has also declined this year, as compared with last, but the figures are still above those of 1938. The total average ton-mileage figures of the main-line companies for 1945, at 22,023,000,000, compared with 24,444,000,000 in 1924, and with only 16,266,000,000 in 1938. Over two-thirds of the increase on the pre-war figures has been in merchandise and livestock which has to be handled, and is, therefore, relatively expensive in manpower. This trend has continued into 1946. The railways have found it easier to deal with this greater movement of freight than with that of passengers, for the locomotives available for service last year numbered 18,728 against 18,469 before the war, but the wagon supply position

is acute. *The Times* comments that it is evident that the drive for the restoration and improvement of peacetime services is being pushed to the limit permitted by the continuing deficiencies of manpower and equipment, but the outlook for railway services is foreshadowed by the threat that coal supplies in the winter will be extremely difficult.

* * * *

### Overseas Railway Traffics

After a decrease of ps. 222,000 in the week ended August 24, Buenor Ayres Great Southern receipts were ps. 893,000 lower in the next seven days, making a total decline for the fortnight of ps. 1,115,000. The Central Argentine decrease of ps. 67,830 in the eighth week was followed by a recovery in the week ending August 31, when an improvement of ps. 46,340 was shown on the preceding year, so that the net decrease for the fortnight was ps. 21,490. The Buenos Ayres & Pacific and Buenos Ayres Western have shown increases in both weeks under review, totalling ps. 58,000 and ps. 368,000 respectively. These increases on the Buenos Ayres & Pacific followed a decline of ps. 3,000 in the week ended August 17. Results are compared in the table below:—

| | No. of week | Weekly traffics | Inc. or dec. | Aggregate traffics | Inc. or dec. |
|---|---|---|---|---|---|
| B.A. & Pacific* ... | 9 | 2,000 | + 36 | 19,013 | + 1,185 |
| B.A.G.S.* ... | 9 | 2,714 | −893 | 28,917 | + 844 |
| B.A. Western* | 9 | 1,257 | +237 | 10,668 | + 903 |
| Cent. Argentine* | 9 | 3,252 | + 46 | 27,939 | + 631 |
| | | £ | £ | £ | £ |
| Can. Pacific ... | 35 | 2,086,500 | − 26,250 | 6,682,000 | −5,442,750 |

* Traffic returns in thousands of pesos

Gross earnings of the Canadian Pacific Railway for the seven months from January to July totalled £40,877,500, a decrease of £5,049,000 on the preceding year. A decrease of £1,230,000 in the gross earnings for July was accompanied by a decrease of £628,500 in working expenses.

* * * *

### Restoration of Chinese Railways

The railways of China were suffering already from the effects of the Japanese invasion when general hostilities broke out in 1939, and even now the disturbed conditions in some parts of the country complicate operation. In general, however, rapid progress is being made in rehabilitation, the restoration of service on the Canton-Hankow system after six months of work in face of many obstacles being a particularly noteworthy achievement, which is the subject of an article on page 294 this week. As traffic is restored on the various lines, they are being re-grouped as shown in the map of the new Chinese National Railways system reproduced elsewhere. Some notes on the present position of railway services appeared in the Overseas section of our August 2 issue. In addition, it is reported that the Peiping-Tientsin System is operating on a reduced scale, and similar limited services are running on the Tientsin-Pukow System, of which only the southern section is working. On the Nanking-Shanghai System, normal traffic is running from Shanghai to Nanking and Hangchow, but the lines from Hangchow to Ningpo, and from Nanking to Wuhu, have been largely destroyed. Very little working is possible on the Kunming System, owing to destruction of the connection with Indo-China. The Chekiang-Kiangsi System is operating for about 50 km. from Hangchow, but the Hunan-Kwangsi-Kweichow System was almost completely destroyed during the war.

* * * *

### A History of the "Norte" of Spain

Among a number of publications presented to us recently by Señor J. de la Fuente, Information Officer of the Spanish National Railways, was a handsomely-bound volume* of some 655 pages, with statistical supplement, containing a concise history of the rise and development of the former Northern Railway, the "Norte," down to its absorption in 1939 into the R.E.N.F.E. system. When the separate identity of the railway disappeared, it was thought to be time to place on record in reasonable detail the story of the undertaking, in many ways the most important of the Spanish main-line routes. The task was admirably carried out, amidst considerable difficulties, by Señor J. Marquina, a former General Manager, although not in the style that could have been wished, owing to the loss of great quantities of most valuable documents, prints, etc., incurred during the civil war, when the company's headquarters were turned into a fortified post, and severely damaged. There are no illustrations in the book, save a map and sets of diagrams, but it is, nevertheless, remarkably complete and well-produced, no aspect of the activities of the Norte lines failing to receive some mention, although at times but a brief one. The company has had to suffer more than once from the effects of political disturbances, and in the recent troubled years saw its engineering works attacked and large amounts of rolling stock destroyed. The Norte was in great part the work of French interests to begin with, and they long exercised a noticeable influence over the working of the railway and its fortunes.

* "Compañía de los Caminos de Hierro del Norte de España; (1858-1939); Historia, Actuación, Concesiones." Espasa Calpe S.A. Madrid, 1940

* * * *

### London Traffic and the London Plan

Future programmes of the British Association for the Advancement of Science, which is now in a position to resume its activities to the full, are to be widened in scope to cover problems affecting the man in the street, and a start has been made with a conference on London traffic and the London Plan. The object of the conference, which will be dealt with more fully in a future issue, was to provide an opportunity for an examination of the difficulties of combining architectural vision with the practical needs of travel and the engineering problems involved, and, if considered advisable, to draw up conclusions for submission to the Ministries concerned. Sir William Halcrow, President of the Engineering Section of the Association, speaking at the opening session, reviewed briefly the subjects to be discussed, at the same time calling attention to the complications which would be bound to arise when attempting to put into execution any ambitious scheme for rebuilding and replanning London. These complications were clearly brought out by the authors of the papers which followed. Mr. V. A. M. Robertson, Chief Civil Engineer, Southern Railway, describing a hypothetical underground station at Charing Cross for dealing with suburban traffic, said that such a station would have to be built 125 ft. below ground, and would cost about £17,000,000. Mr. J. C. Martin, Assistant Engineer (Tunnelling), L.P.T.B., expressed the view that the wholesale removal of main-line termini would be a needless extravagance. Such a scheme, indeed, would dislocate existing underground lines and render them practically useless.

* * * *

### G.W.R. Winter Timetable

The G.W.R. winter train services, which will come into operation on Monday, October 7, shows a considerable improvement over those which were in operation last winter, and in some respects are better than those which have operated during the summer. Compared with last winter's service, there will be a 20 per cent. increase in the daily mileage run by trains; 600 main-line and local services on weekdays and 186 on Sundays will be operated in excess of last winter's service. More restaurant and buffet car facilities are being provided than in the summer service. There were none last October. Among summer service and business trains which are being operated are the "Cornish Riviera" and "Torbay" expresses, and a number of pre-war services are being restored, as will be seen from the details given elsewhere in this issue. A number of trains are being accelerated and slip-coach working is being continued and extended. Sailing tickets on the Fishguard-Waterford route are being suspended from September 30 and on the Channel Island route *via* Weymouth from October 7. The booking of seats on a number of main-line trains is also being reintroduced.

* * * *

### Belgian Instruction Train for Signalmen

An interesting article in our Dutch contemporary *Spoorwegen, Tramwegen,* by the Chief of the Netherlands Railways Training School, describing the educational methods on the neighbouring Belgian railway system, refers to the travelling school for signalmen which has proved very successful. Not

satisfied with the arrangements already in force for training the signalmen, the management decided to establish a school for the purpose, to supplement the usual instruction given in the ordinary signal boxes. It was proposed, originally, to have a central school at Brussels, but this would have involved a great deal of travelling from distant parts of the system. To establish a separate school in each of the eight divisions would have been too expensive. It was decided, therefore, to have a travelling school, and a four-car train has been equipped, comprising an office and staff car, a classroom car, and two apparatus cars, each with a miniature railway, one of which has mechanical and the other power signal apparatus, with the necessary accessories. Candidates take the school course before going as learners in a signal box.

* * * *

## International Rail Transport

IN 1940 Chatham House commissioned Sir Osborne Mance to prepare a study of international transport and communications. Four sections of the work have been issued, dealing with telecommunications, air transport, rivers and canals, and sea transport. To these has now been added a fifth section on rail transport, written by Sir Ralph L. Wedgwood with the assistance of Mr. J. E. Wheeler.* When he was Chief General Manager of the London & North Eastern Railway from 1923 to March, 1939, Sir Ralph took a keen interest in the continental services run by the British railways and in the business of the International Railway Congress Association. He also travelled far and wide during his annual vacations, generally avoiding the beaten tracks followed by the majority of tourists. He could therefore bring first-hand knowledge to bear on a review of the railway situation and has managed to condense into a book of less than 150 pages a mass of information about developments in Europe, Africa, the Middle and Far East, and North and South America. Much of his material was of a somewhat dry nature, but he has sifted the facts so as to give a clear view of the progress that has been made, and his own comments are expressed with a lucidity that leaves no room for misunderstanding.

An outline of European rail transport arrangements before the war of 1914-18 indicates the growth of co-operation between the various administrations. While Unité Technique laid down standards for rolling stock and permanent way, the Berne International Convention unified the conditions governing the carriage of goods by rail in nine European countries.

Between the two wars European railways came closer together than ever before and new organisations were set up. The International Railway Union was created to unify and improve conditions relating to the construction, equipment, and operation of lines engaged in through traffic. The Union also modernised the regulations of Unité Technique. Its monthly journal contained many useful articles and it issued an annual volume of statistics. A body of first-class importance to the British railways is the European Timetable Conference, formed in 1891 and subsequently extended to settle the timings for the network of international services. The continental representatives of the British railways take an active part in the affairs of the Conference and attend its annual meetings. On the other hand this country is not a party to the Berne Convention for merchandise nor to the Convention, agreed in 1924 and revised in 1938, which covers the transport contract for passengers and baggage, the liability of the railways for accidents, and the publication of tariffs. Legal difficulties have barred the way, but it is understood that a move is being made to obtain legislation which will enable Great Britain to be a party to the Berne Conventions.

After analysing the political and economic factors which have affected railway developments, Sir Ralph Wedgwood throws out some suggestions for making headway in the after-war years. He thinks that it will be expedient to have a world transport organisation, whose duties in respect of railways would be to investigate problems of interest to more than one region, to compile information and statistics, and to act as arbitrator in disputes. He would keep the International Railway Congress Association in being, but feels that a central administrational body is required, representative of all European railways, with subordinate administrative committees dealing with particular branches of work such as traffic, accounting, rolling stock exchange, permanent way, signalling, and electrical equipment. There would be a co-ordinated organisation in Europe on much the same lines as the Association of American Railroads. Its efforts would be directed to achieving four main objects:—

(*a*) Uniformity of physical standards;

(*b*) efficient distribution of rolling stock, particularly wagons;

(*c*) uniformity of conditions of carriage, both between railways and in relation to the public;

(*d*) stability of tariffs, and some measure of uniformity in their structure.

Sir Ralph Wedgwood enlarges on these propositions at some length before he rounds off his study by a reference to the railway transport problems raised by the second world war. He hopes that whatever international authority takes the place of the League of Nations it will evolve machinery for the speedy settlement of these troubles. In his opinion a strong and simple system of arbitration will be needed, with the full prestige of the world transport organisation behind it. He points out, however, that his conclusions were drawn in the summer of 1945 and that amendments may be justified when post-war international relations have taken on a more settled aspect. No doubt that explains why he does not refer to the establishment of the European Central Inland Transport Organisation in September, 1945. *The Railway Gazette* of October 5 and 19, 1945, explained that E.C.I.T.O., in large measure, became responsible for discharging the functions enumerated above. It was given almost a free hand to promote co-operation between railway administrations, and, if its work during the period of transition is successful, the transport problems left open for settlement under the peace treaties should be simplified considerably. These questions presumably will be discussed in the final volume which Chatham House intends to publish to summarise the results of the study of international transport and communications in all its branches.

* * * *

## Co-ordination of Transport

IT is now generally expected that a Government Bill to nationalise inland transport will be brought before Parliament in the next session. Despite the lessons which should have been learnt from the coal-mining industry, which has suffered a steady diminution of output and decline in efficiency of production since the Bill to nationalise the pits passed through Parliament, and the increasing realisation which now appears slowly to be permeating even Government circles, that the nationalisation of sections of the iron and steel industry arouses problems of a magnitude and complexity which, at the moment, appears to give Mr. Wilmot cause for reflection, there is no indication that the Government has any intention to desist from its avowed policy of bringing transport under State control.

The achievement of the close co-ordination of British transport services is a problem which has exercised the minds of many, both within and without the industry, for some years. The more closely the practical problems of fusing rail, road, canal, coast-wise shipping, and airway facilities into a unified, smooth working, cheap, and comprehensive system have been examined, the more formidable the task has appeared. The nationalisation of each of the separate arms of transport would not resolve the problem, which must be attacked from the technical and organisational end, rather than from the political and financial side.

The Transport Correspondent of *The Financial Times* has approached the problem from this angle, and in two articles published recently sets out the conditions which a unified public transport system must satisfy, and outlines the principles at which it must aim. He suggests that the Transport Authority of the future must be entirely independent. If it were a State Authority it would be dependent in the last resort on the Treasury, and the intrusion of Exchequer interests could be fatal to a body whose sole aim was the interests of transport users. It would also have to be independent of pressure from the railways, from road organisation, and from special interests among transport users.

His next principle is that transport should be financially self-

* International Rail Transport. By Sir Ralph L. Wedgwood, C.B., C.M.G., assisted by J. E. Wheeler. Issued under the auspices of the Royal Institute of International Affairs. Geoffrey Cumberlege, Oxford University Press, Amen House, Warwick Square, London, E.C.4. Price 10s. 6d.

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supporting, meaning that all expenses must be covered, that the owners of the capital represented by its assets should have a reasonable return, and that a generous margin should be available for progressive development. Finally, there would have to be continued incentive for efficiency. He suggests that the most effective way of providing this is by granting complete freedom to private transport, that is to say, any form of transport up to and including "C" licences.

It is recognised that if public transport is completely co-ordinated in a unified scheme, the charges machinery should be overhauled and new principles established. These charges, presumably, would allow for such basic variations in the costs of the constituent transport arms as those relating to track and other fixed charges, which are heavier in the case of railways than in any other form of transport.

At the present time, any contribution to serious thought on outstanding transport problems is of value, and it is encouraging to see a growing realisation that the main problems to be faced are technical and operational, and are quite incapable of solution by political means. The articles in *The Financial Times* have attracted a good deal of attention, and that paper has published comments on them by the Minister of Transport, Brigadier-General Sir Osborne Mance, Mr. Roger W. Sewill, Sir Frederick Heaton, and Mr. Frederick Smith. The articles, it should be noted, are confined to the enunciation of certain broad principles. Whether the practical implications of those principles could be carried into effect may be doubted, but they provide a line of thought which, if pursued, may well lead to a practical solution of some of the major problems of the industry. That is more than can be said of any half-baked bureaucratic scheme of socialisation.

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## Locomotive Coal Costs and Consumption

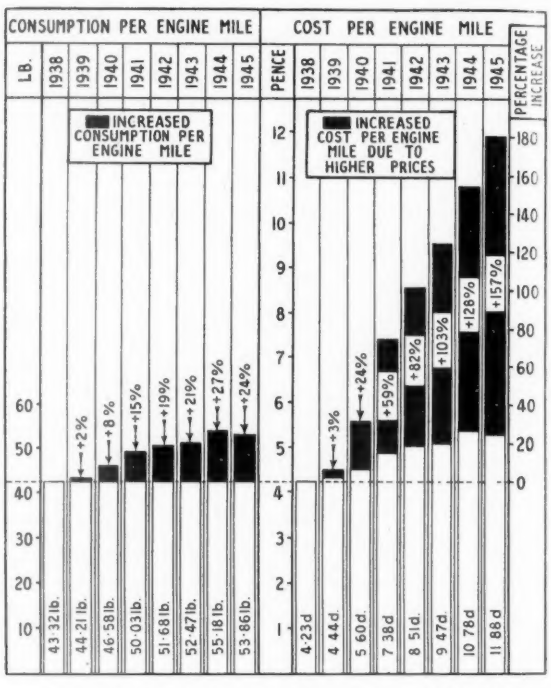
THE cost of practically all materials necessary for the operation of the railways has risen steeply throughout the war, and of all materials the cost of coal is of outstanding importance. The railways are amongst the largest consumers of coal in the country. In the year 1945, because of greater consumption and higher prices, the cost of locomotive coal used by the Great Western Railway was £4,700,000. Compared with 1938 this is an increase of £2,900,000 or 160 per cent.; it represents 13 per cent. of the total expenditure incurred on railway working in the pre-war year. Although the average price of locomotive coal per ton in 1945 was 126 per cent. above pre-war, it has increased still further in the first six months of the current year to 151 per cent.

Perhaps a more pertinent way of expressing the effect of this large item of operating expenditure is to show the comparative consumption and cost *per mile*, which is given in the chart in the next column for the years 1938 to 1945 inclusive. It will be seen that, while the average consumption per engine-mile during 1945 compared with 1938 has risen by 24 per cent., the average cost per mile has increased by 181 per cent. Of this increased cost, 24 per cent. was due to greater consumption, and 157 per cent. to higher prices, including 31 per cent. attributable to higher cost of additional coal consumed per mile.

The consumption of coal per engine-mile in 1938 was 41.27 lb. for coaching traffic and 44.80 lb. for goods services, giving the combined figure of 43.32 lb. shown in the chart. During the war years the passenger train-mileage had to be progressively curtailed to enable additional freight services to be run, to provide for the ever increasing volume of war traffic which had to be carried. The transfer of a large proportion of the engine-mileage from coaching to goods traffic at the heavier rate of consumption quickly increased the average consumption per mile. This latter factor shows a small decrease in 1945 compared with 1944, due to the restoration of passenger services, which, however, are still 9 per cent. below pre-war, because of shortage of rolling stock and other causes.

Another factor which has contributed to increased coal consumption per mile is the inferior quality of much of the coal supplied to the railways. The Great Western engines were designed to burn largely South Wales coal of the best steaming qualities, but because of war conditions and the general shortage of coal, it became necessary to use other grades of coal and even briquettes, which, being of inferior quality, involved heavier consumption per mile, and added to the difficulties of maintaining the engines in good condition.

Yet another factor causing increased consumption per mile was the generally unfavourable operating conditions which slowed down the movement of railway traffic, such as the black-out, bomb damaged railway bridges, stations, and track, necessitating the imposition of speed restrictions at many points, and




*Locomotive coal consumption and cost*, 1938-1945

the general deterioration in the condition of the locomotive stock owing to shortage of maintenance staff and materials.

The restoration and improvement of G.W.R. pre-war passenger train services will inevitably entail a considerable increase in total coal consumption, and in view of the high price and acute shortage of coal, the company has followed the prudent course during the past year in experimenting with oil-burning locomotives. As recently recorded in our columns, after successful trials it has been decided to convert 44 passenger and freight locomotives from coal to oil burning, thus saving a total of 50,000 tons of coal a year. In August, the Minister of Transport requested the company to convert a further 172 passenger and freight locomotives to save coal, and this is being pushed forward rapidly. Details of the locomotives concerned were given in our August 30 issue.

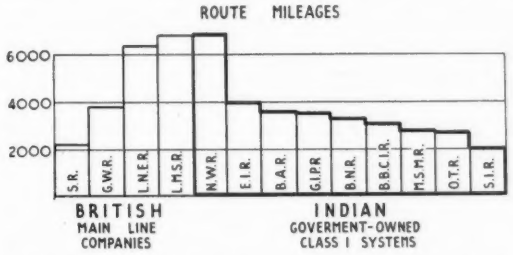
* * * *

## India's Railways

WITH her 40,509 route miles, India holds fourth place for length of line amongst the railway countries of the world. Comparison in other respects, perhaps, is not often attempted, because Indian railways have been built in special circumstances—for the safeguarding of internal and external peace and the reduction of famine, factors which general statistics cannot take into account. The following comparative statistics, referring to the year 1938, which are intended to present Indian railways in their correct world-wide perspective, may remove some of the current misconceptions of an important product of British influence in India.

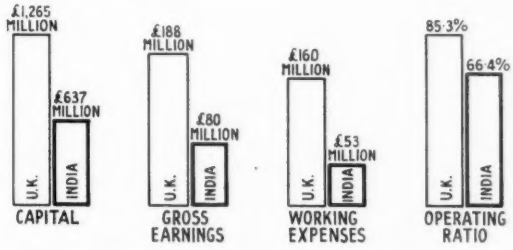
Indian railways are at present worked as 43 independent systems. Of these, 13, representing about 91 per cent. of India's total route-mileage, earn more than £375,000 a year each and are classed as main or Class I railways. The Government of India exercises certain general powers over all, and owns and operates the nine largest of the Class I railways, but about one-fifth of the country's total route-mileage is still owned and operated by Sovereign States and private companies in small systems. There are four different gauges in use—5 ft. 6 in. or standard gauge, metre gauge, 2 ft. 6 in. or narrow

gauge, and 2 ft. gauge. Of the total route-mileage, 51 per cent. is standard gauge, 40 per cent. is metre, and the remaining 9 per cent. is made up of 2 ft. 6 in. and smaller gauges. Of Class I railways, the nine Government-owned and operated are comparable in route-mileage with the four British main-line companies. This is illustrated in the following diagram:—

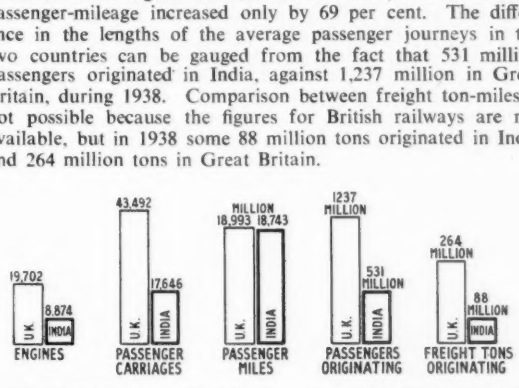



The differences in the administrative problems confronting the railways in either country can be illustrated conveniently by the fact that the North-Western Railway of India, having a route-mileage approximately equal to that of the L.M.S.R., serves an area two and a half times bigger than the combined areas of England, Wales, and Scotland.

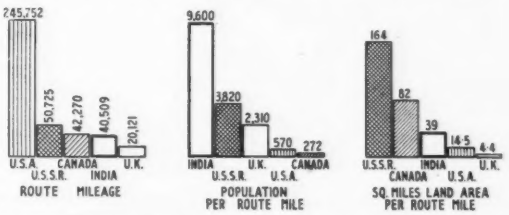
The capital of Indian railways is represented by approximately £637 million as compared with the £1,265 million authorised capital of British railways. Whereas in 1938 the gross earnings on Indian railways were 43 per cent. of those obtaining on British railways, working expenses were only 33 per cent. of those on British railways. These figures give Indian railways a much lower operating ratio which cannot be explained away by lower rates of pay, because Indian passenger fare rates are proportionately lower.




Indian railways possess approximately 8,900 engines and 17,600 passenger-carrying vehicles, and it is, therefore, remarkable that in 1938 Indian railways achieved a passenger-mileage almost identical to that achieved during the same year by British railways with more than twice the number of engines and more than two and a half times the number of passenger-carrying stock. It is, perhaps, more remarkable still that in India the 1938 figure was doubled in 1944, whilst Britain's passenger-mileage increased only by 69 per cent. The difference in the lengths of the average passenger journeys in the two countries can be gauged from the fact that 531 million passengers originated in India, against 1,237 million in Great Britain, during 1938. Comparison between freight ton-miles is not possible because the figures for British railways are not available, but in 1938 some 88 million tons originated in India and 264 million tons in Great Britain.




Though there is much scope for improving travel conditions and introducing faster trains, it would appear that Indian railways are at present adequate for the normal requirements of the country, and also, with some strain, for exceptional demands such as were imposed by the war. Consideration of population, land area, and railway route-mileage of the leading countries of the world, however, would suggest that there are tremendous possibilities for developing India's railway system if the country attains any considerable degree of industrialisation. Industrialisation in turn depends on the amount of cheap power available. In 1944 India produced 23·5 million tons of coal, almost all of which was mined in Bengal. The difficulties of the industrialisation of provinces remote from Bengal are therefore obvious. At present, preliminary work is being done on a series of vast hydro-electric schemes in the lower Himalayas. These, in 10 or 15 years' time, by providing an abundance of cheap power, may make possible great industriali-




sation in the localities they serve. A further implication of the hydro-electric schemes is that they would open up possibilities for the introduction of electric traction which would result in further economies for those districts remote from the coalfields. However much the country is destined to develop, the present increasing efficiency of air and road transport undoubtedly will prevent India from passing through a railway mania, and the high route-mileage densities presented by the now shrinking systems of the western countries are not likely to be approached in India.

* * * *

## South Australian Government Railways

EARNINGS of the South Australian Government Railways for the year ended June 30, 1945, showed a decrease of £517,543 compared with the record figure of £6,001,982 achieved in 1943-44. Passenger revenue was £43,746 lower, and there was a reduction of £14,168 in receipts from refreshment rooms, both caused by smaller military and defence work traffic. Drought conditions affected the transport of wool, bringing a decline of £16,925 in this traffic, and reduced movement of wheat was responsible for a decrease of £45,453. Other freight receipts decreased by £289,213, largely because of the falling-off of work at defence plants already mentioned. Rents and miscellaneous receipts were £141,971 lower, for which reduced payments from the Commonwealth Railways for the hire and maintenance of locomotives required for the heavy military traffic to and from Central Australia was largely responsible. Working expenses totalled £5,047,081, showing a net decrease of £67,571. The deficit shows a net increase of £454,022 compared with the previous year. General results are compared in the table below:—

| | 1943-44 | 1944-45 |
|---|---|---|
| Miles open ... ... ... ... ... | 2,547¼ | 2,547¼ |
| Train-miles... ... ... ... ... | 6,776,971 | 6,618,028 |
| Passenger journeys ... ... ... ... | 27,356,303 | 24,820,027 |
| Goods, minerals, and livestock (tons) ... | 3,672,725 | 3,501,821 |
| Average haul (miles) ... ... ... ... | 122·26 | 117·9 |
| Operating ratio (per cent.) ... ... ... | 85·2 | 92·0 |
| Capital cost of open lines ... ... ... | 29,908,070 | 30,310,211 |
| Gross earnings ... ... ... ... ... | 6,001,982 | 5,484,439 |
| Working expenses, including pensions ... | 5,114,652 | 5,047,081 |
| Net earnings ... ... ... ... ... | 887,330 | 437,358 |
| Interest, sinking fund, depreciation, etc. ... | 1,336,699 | 1,361,649 |
| Total deficit ... ... ... ... ... | 474,319 | 928,341 |

The Commissioner's report points out that the current deficit of £928,341 represents a retrogression of £855,664 in the two years since June 30, 1943. The accumulated deficit is now £14,871,966. This serious drift in the financial position arises from the fact that, although earnings are declining steadily from the peak figures of the war period, wage rates and cost of coal and materials have not yet begun to fall. Fares and freight rates have not been increased for many years, but the present wages cost is at the rate of £305,708 a year higher than in February, 1942. Of this increase, £162,099 is due to basic wage adjustments, and the remainder is accounted for by increases resulting from various awards. Similarly, the average cost per ton of coal was 44s. 8d. in 1945, as compared with 36s. 7d. in 1942. The surplus of earnings over working expenses provided £437,358 towards meeting fixed charges, equivalent to 19s. 10d. per cent. on average capital invested.

# LETTERS TO THE EDITOR

*(The Editor is not responsible for the opinions of correspondents)*

## New South Wales Government Railway

P.O. Box 711,
G.P.O., Singapore. August 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Your issues of July 5 and August 9 had articles dealing with the opening of the new Hawkesbury River Bridge in New South Wales, and one very interesting point brought out by the photograph was that the N.S.W.G.R. has evidently abandoned the streamlining with which the first few new Pacific type engines were fitted. As these engines spend most of their time scaling the precipitous cliffs which pass for main lines in that State, the advantages of the added weight were always open to question.

Another point of interest was that the special train which was run in connection with the opening ceremony was hauled by one or two of the ancient C32 class. These 4-6-0s at one time handled all the fast traffic in the State, and as late as 1929 were running the fast light-weight trains which had been introduced to meet road competition. They were notable for the solid bogie wheels and the very uncomfortable circular cab windows. Some 190 of them were built up to 1912, and as rebuilt, with self-cleaning smokeboxes and superheaters, they were a very fine piece of work, their 5 ft. wheels proving no obstacle to speeds up to and above the sixty mark.

I always feel that you receive far too little information about that particular Australian railway, which, in many ways, is one of the most difficult in the world from the operating point of view.

Yours faithfully,
I.I.B.

## The Lines of Communication, Assam

10, Kneele Gardens, Hartley Vale,
Plymouth. August 27

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—A considerable amount of correspondence has appeared in *The Railway Gazette*, ending with that from Lt.-Colonel H. M. Read, Defence of India Units, now Deputy General Manager, Bengal Assam Railway, in your issue of August 23.

This correspondence appears to claim responsibility to each separate organisation for the success of the rail Lines of Communication to the 14th Army and General Stilwell's forces, including the supply to China.

As the Commander of the British and Indian Transportation Forces in the Field in Assam, dealing with the metre-gauge only, first and foremost I wish to make it clear that a very great success was achieved against appalling conditions of climate, against the forces of nature brought into play by monsoon weather, and in spite of the slothfulness of the Indian way of life in peacetime.

Secondly, this success was not due to any separate organisation, but should be proclaimed in its later stages as one of the greatest combined efforts of the Allies during the war, and due credit should be shared accordingly, Indian, American, and British personnel being involved.

Thirdly, a brief outline of the organisation might permit the reader to understand fully how the operations were undertaken.

A Director of Transportation, G.H.Q., India, was appointed in 1941 as head of the Military Transportation Organisation then forming, and as adviser to the C. in C., India. In 1942, when the Assam Line of Communications came into the picture, planning was carried out by this officer, and the responsibility for execution placed on the Railway Board of India, through the State Railways. Military Transportation advisers and troops were allocated as required to assist the State railways, particularly the Bengal Assam Railway, which were carrying the heaviest burden, requiring the greatest expansion. In Assam, the military units assisted where required, both on operating and construction. They also carried out independent construction of depots, river ports, and airfield sidings, where the State railways could not undertake them; this continued up to March 1, 1944, under the direction of the General Manager, Bengal Assam Railway.

By this time, the burden had become too heavy for the Bengal Assam Railway to carry, and on the above date the Director of the United States Military Railway Service took over the direction of operation, including the following personnel—4,000 American Operating troops, 3,500 Indian Engineers of the Transportation Service, and the whole of the State Railway operating personnel, a great number of whom were members of the Defence of India Units, including the track maintenance forces.

At the same time all construction was placed under the Direction of the Assistant Director of Transportation (British Military), Assam, including the direction of the Chief Engineer and Staff enumerated by Lt.-Colonel Read in his letter, and the Military forces under the A.D.Tn., Assam, which were built up eventually to 6,000 officers and men of the Royal and Indian Engineers, and 15,000 men of various pioneer services, these civil and military forces being integrated.

On completion of the construction, approximately 1,000 pioneers were transferred to the United States Military Railway Service for maintenance purposes, and the other units withdrawn for transfer to Burma.

F. J. J. PRIOR,
R.E., O.B.E., A.M.I.C.E.,
Lt.-Colonel, late Assistant Director of Transportation, Assam

## A Dump of "Austerities"

64, Martyrs' Field Road,
Canterbury. August 19

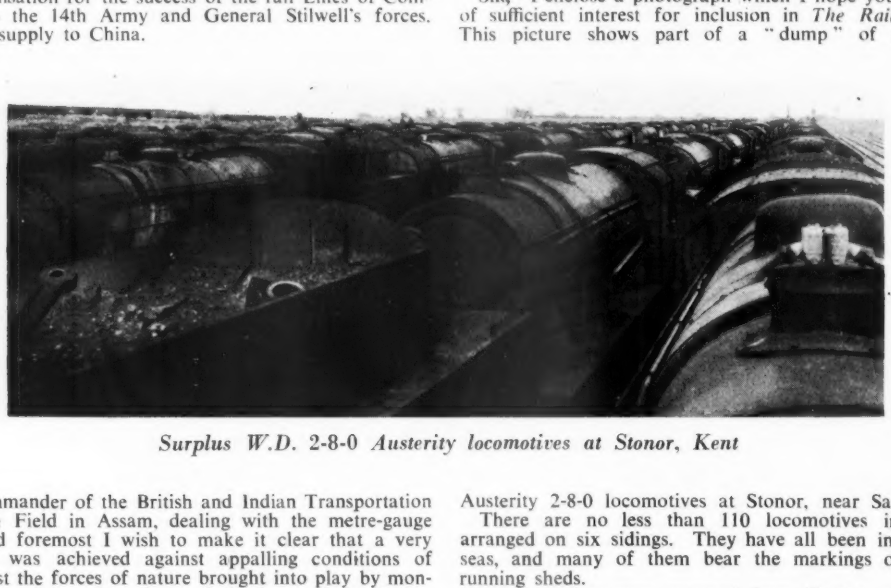
TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I enclose a photograph which I hope you will consider of sufficient interest for inclusion in *The Railway Gazette*. This picture shows part of a "dump" of surplus W.D. Austerity 2-8-0 locomotives at Stonor, near Sandwich, Kent.

There are no less than 110 locomotives in this dump, arranged on six sidings. They have all been in service overseas, and many of them bear the markings of Continental running sheds.

These engines were returned from France, *via* Calais, and were conveyed to Dover on board one of the train ferry steamers. All have their connecting rods and valve gear dismantled, and some have their coupling rods removed as well. A pair of connecting rods will be noticed in the tender nearest the camera. It would appear that these engines have been sent home as "rejects," and are dumped at Stonor, awaiting disposal.

Yours faithfully,
ARTHUR G. WELLS



*Surplus W.D. 2-8-0 Austerity locomotives at Stonor, Kent*

# Publications Received

**Mineral Railways.** By R. W. Kidner. (Light Railway Handbooks, No. 7). Sidcup, Kent: The Oakwood Press, 19, The Drive. 7 in. × 4¾ in. Illustrated. Paper covers. Price 2s. 0d. net.—Cornish tin and Welsh slate are responsible for the continuance of most of the mineral railways which have survived. This booklet is by no means all-embracing—the author hopes to complete the picture of these little lines in a later work—and it excludes mineral railways which have carried passengers or passed to the main-line companies. Nevertheless, it ranges, topographically, from the Rowrah & Kelton Fell to the Alderney, and takes in the Welsh and Cornish quarry lines and one or two others in England. There is a sketch-map and a brief description of each line and its stock, with sketches of locomotives. Typical locomotives and scenes are illustrated. The index has the merit of giving references to articles on the lines which have appeared in *The Locomotive* and *The Railway Magazine*.

**Railway Inspection.** London: *The Railway Gazette*, 33, Tothill Street, S.W.1. 8 in. × 5¼ in. 24 pp. Paper covers. Price 1s.—More than a century has passed since the State found it desirable to exercise some measure of supervision over railway working by the appointment of Inspecting Officers with powers to inspect new railways, to postpone the opening of any lines found to be unsatisfactory, and to inquire into the causes of accidents. Legislation making certain safety measures obligatory has been found necessary from time to time, but a policy of minimum interference has always been followed, with excellent results. A summary of the salient points is presented in a handy and readable form in this brochure. Sections are devoted to the appointment of the first Inspecting Officers; the brief period of control by the Railway Commissioners; the important question of passenger communication; the Regulation of Railways Act of 1889, which gave power to the Board of Trade to order the adoption of the block system, and the provision of interlocking and continuous automatic brakes; inquiries into accidents; and accident reports. A table compiled by Lt.-Colonel A. H. L. Mount, the present Chief Inspecting Officer, shows the complete succession of inspecting officers from 1840 to the present day.

**The Royal Road.** By Robert Allan. London: Sir Isaac Pitman & Sons Ltd., Parker Street, Kingsway, W.C.2. 7½ in. × 5 in. 192 pp. Illustrated. Price 7s. 6d. net.—This book begins with a short outline of road transport history in Great Britain from the days of the Late Stone Age (about 2,000 B.C.) when tin from the mines of Cornwall was transported in wagons for shipment to the Continent, to the present time, when four-wheel drive tractors, drawing 60-ft. trailers, excite no special comment. An outline is then given in a concise and readable form of the vast developments of the road haulage industry during the present century. A detailed account, supplemented by some excellent illustrations, is given of the great part played by road transport in the two world wars; and the trials and humours of the general strike of 1926 receive brief mention. Of particular interest are the sketches of the origin and growth of some of the leading firms in the road haulage industry whose names have long since become household words. Railway interest is not lacking, as frequent references are made to the cartage vehicles, and passenger road transport interests, of the four main-line railway companies. The apparent object of the author is to show that the achievements of road transport under private enterprise justify the continuance of the industry without the interference of any form of part nationalisation.

**L.M.S.R. Numbers, Names and Classes.** By A. J. Creswell. Huddersfield: Quadrant Publications, 390, Wakefield Road. 7¼ in. × 5 in. 16 + viii pp. Price 1s. 6d.—Numbered M.S. 65 in the Quadrant Publications series, this booklet lists, with their numbers, all named L.M.S.R. locomotives, and includes a table of L.M.S.R. engine classes. It gives also the intended new numbers of L.N.E.R. locomotives under the second renumbering scheme, where they differ from those recorded in Book Q 64 of the series. A page of line drawings illustrates four L.M.S.R. engine types. G.W.R. locomotive stock changes between May and July last are included and there is a complete list of L.M.S.R. running sheds with their codes.

**Transport.** No. 34 in the series of Oxford Pamphlets on Indian Affairs. By F. P. Antia: Geoffrey Cumberlege, Oxford University Press. 7½ in. × 5 in. 32 pp. Price 6 annas.—This brief review of rail, road, air, and water transport in India and the functions of each, urges the necessity for their efficient co-ordination. As now genérally acknowledged, 50 miles is the free zone for both passengers and goods, and the present proposals being considered by the Government are stated to limit road passenger services to 50 and goods services to 100 miles, beyond which limitations railways and steamer companies may object. The Transport Advisory Council has also recommended joint rail-road companies with the participation of the Provincial Governments, a recommendation accepted by most of the Provinces; in some, joint companies are already being formed. Mr. Antia underlines the wasteful long-distance road-freight services—sometimes as long as 1,000 to 1,500 miles—and deplores the attitude of the railways in formerly seeking to restrict short-distance road services unduly. He points out that there is plenty of room for both rail and road, each in its own economical sphere.

**Reinforced Concrete for Buildings & Structures Report on Formulæ for Computation of Stresses.** Published by the Institution of Structural Engineers, 11, Upper Belgrave Street, London, S.W.1. 8 in. × 5½ in. 26 pp. Price 1s. (Copyright reserved and in U.S.A. by the Institution, without whose consent no part of the document may be reproduced).—This brochure opens with a schedule of standard symbols used in it, and a foreword, which explains that its object is to collect for ready reference the formulæ most commonly used, and to incorporate in them the institution's standard notation. The report, which does not claim to be either a textbook on design or a complete set of formulæ, is intended as a basis for ordinary reinforced concrete design generally. Copies of the various graphs included are available for office use in separate foolscap-size sheets. The more generally-used symmetrical rectangular sections under combined bending and compressive loads have been more fully investigated, and these are considered in detail with diagrams and curves reproduced to assist the designer. The calculations in the report are based on the assumption that (1) steel and concrete are elastic within the range of permissible stresses, (2) tensile stresses are taken by the reinforcement, and (3) plane sections at right angles to the neutral axis remain plane. The formulæ are for (*a*) slabs and rectangular beams, (*b*) T and L beams, (*c*) shear and bond stress, (*d*) columns, and (*e*) filler concrete slabs. All the diagrams and graphs are well reproduced, and the brochure provides a valuable guide for the designer.

**Locomotive Engineers of the G.W.R.** By Ben Webb. London: Ian Allan Limited, 282, Vauxhall Bridge Road, S.W.1. 7½ in. × 5 in. 31 pp. Illustrated. Paper covers. Price 1s. 6d. net.—In over a century the G.W.R. has had only six locomotive engineers—Gooch, Armstrong, Dean, Churchward, Collett, and the present C.M.E., Mr. F. W. Hawksworth—and its policy of internal promotion to that post is reflected in the orderly rather than spectacular locomotive progress of the company. The author has combined biographical details of the designers with descriptions of principal G.W.R. locomotive types, from *The North Star* to the new "1000" Class. Besides a portrait of each locomotive engineer, there are illustrations of some of the best-known past and present products of Swindon.

**Statistics: Railways, Roads, Canals.** Published by the London & North Eastern Railway. 32 pp.—Mr. C. H. Newton, Chief General Manager, L.N.E.R., contributes the foreword to this little statistical handbook which, though intended chiefly for L.N.E.R. officers, will be found useful by all interested in railways. The railways section, which occupies twenty pages, is divided into financial and non-financial; the figures given are shown under two columns—for the L.N.E.R. and aggregated for the other three main-line companies. The booklet will be reviewed more fully in a later issue.

**Thornycroft Oil-Engined "Trusty" Class Chassis.**—A new publication issued by John I. Thornycroft & Co. Ltd. describes and illustrates the firm's latest "Trusty" class 4-axle chassis, designed to carry loads up to 22 tons, the legal gross weight for this class of machine. The six-cylinder direct-injection engine is of a type of which many were supplied to the Air Ministry during the war. Price and body details of the chassis will be sent to interested operators on application to the London office or any of the sales and service branches of the firm.

**Wrought Aluminium Alloys.**—A booklet has been published by the Metals Division of Imperial Chemical Industries Limited which classifies and summarises the physical properties of the Kynal and Kynalcore range of wrought aluminium alloys. The published data are arranged in eight separate schedules, enabling designers and engineers to select those alloys most suitable for their specific requirements, and one of these schedules sets out the general physical properties of aluminium and its alloys compared with those of other metals. Other schedules include the strength sequence of sheet and strip products, tubes, bars, and sections, the weight per ft. run of aluminium and aluminium alloys in round and hexagon rods, and the weight per sq. ft. of sheets in aluminium and aluminium alloys compared with brass, copper, and steel. In addition to giving much relevant information on a particular range of wrought products, the booklet contains, therefore, a considerable amount of information of general interest.

XUM

# The Scrap Heap

THE FUTURE

Reconstruction schemes for many stations have been prepared and these schemes provide for extensive modernisation of station premises with improved refreshment and waiting rooms. Priority in the carrying out of these schemes, of course, will require to be given to those stations which were damaged by enemy action.—*From "The L.M.S. Answers Your Questions."*

* * *

**Mr. LaGuardia Goes Underground**

London has had a brief visit from U.N.R.R.A.'s Director General, Mr. Fiorello LaGuardia. He has made one public appearance—a ride on the Underground from Leicester Square to Waterloo and back to Piccadilly.

This seems a mild excursion for a much-travelled man like Mr. LaGuardia. But it is an esoteric significance for New Yorkers. One of Mr. LaGuardia's persistent "headaches" as Mayor of New York was the financing of the New York subways, which for years have run at a loss by charging a five-cent fare whatever the length of the journey.—*From the "Manchester Guardian."*

*Mr. LaGuardia emerging from Leicester Square Station with Mr. Alex. J. Webb*

OIL FUEL

Göring used to tell the German people that they must have "guns instead of butter." Now, it seems, the Minister of Fuel has told the four railway companies that they must burn oil instead of coal. This means that we must import the equivalent of a million tons of coal a year—in other words, "Oil instead of sugar," or butter, beef, cheese, and so on.—*Mr. J. E. Allen in a letter to "The Manchester Guardian."*

* * *

## 100 YEARS AGO

*From* THE RAILWAY TIMES, *Sept* 12, 1846

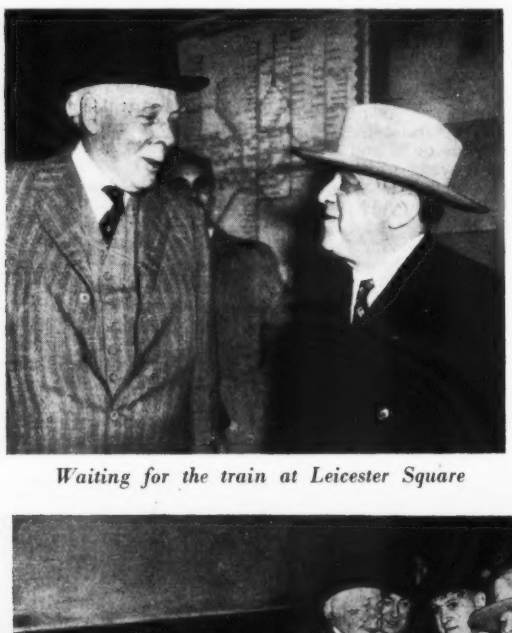
NEWCASTLE and DARLINGTON JUNCTION RAILWAY.—REGISTRATION OF SHARES.—All persons holding Scrip Certificates for Shares in the Newcastle and Darlington Junction Railway Company are requested to transmit the same to the Secretary at York, on or before Saturday, the 19th day of September next, with their names, professions, and residences distinctly written, in order that the same may be correctly entered in the register of the Company.

Shareholders to whom Scrip has not been issued will be duly registered as they now stand in the books of the Company, and all shares not claimed by the actual holders of Scrip Certificates on or before the said 19th day of September, will be registered as the property of the persons to whom they were originally allotted.

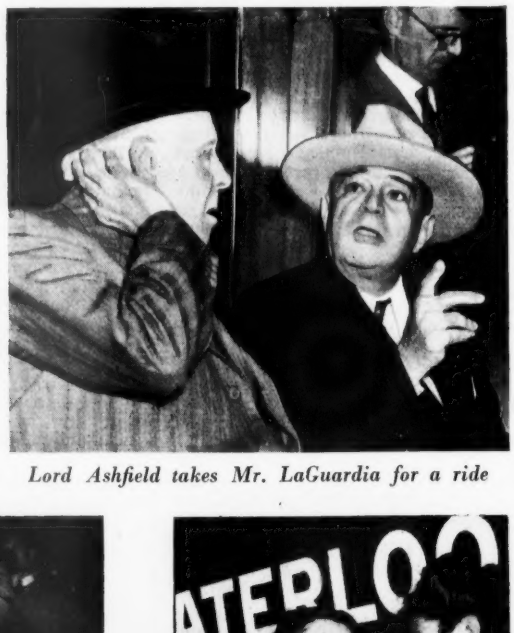
The Secretary will give an acknowledgment for the Scrip, and on the completion of the registry will exchange the same for certificates under the seal of the Company.

GEORGE HUDSON, Chairman.
By order,
JOHN CLOSE, Secretary.

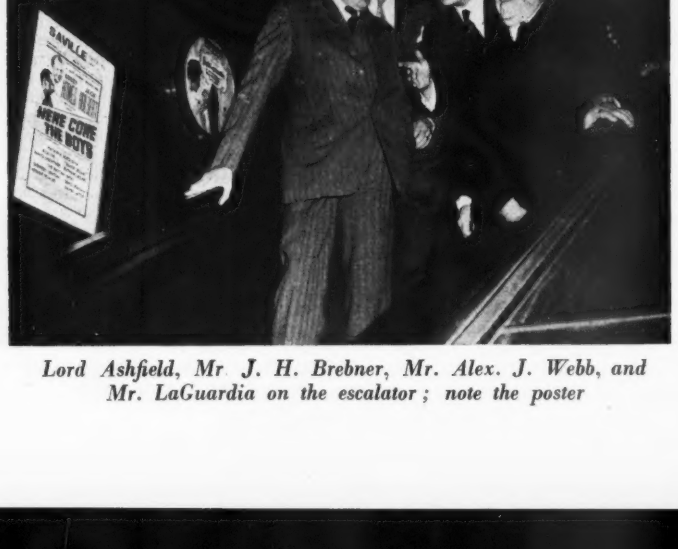
York, August 17th, 1846.



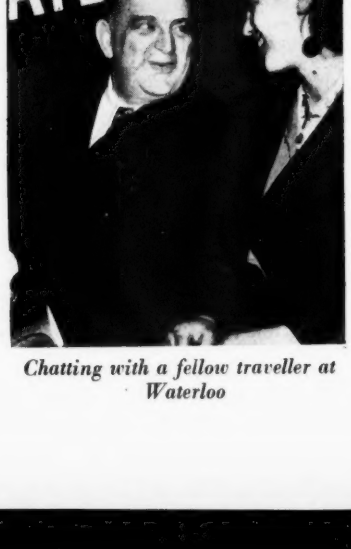
*Waiting for the train at Leicester Square*



*Lord Ashfield takes Mr. LaGuardia for a ride*




*Lord Ashfield, Mr J. H. Brebner, Mr. Alex. J. Webb, and Mr. LaGuardia on the escalator; note the poster*




*Chatting with a fellow traveller at Waterloo*

# OVERSEAS RAILWAY AFFAIRS

*(From our correspondents)*

## INDIA

**South Indian Railway Accounts Society**

A body known as the South Indian Railway Accounts Society was established recently with the following objects: To provide opportunities for the staff of the different sections of the Accounts Department, as also the Statutory Audit Office, to meet at frequent intervals and discuss topics of railway accounting and finance, particularly bearing on subjects which will be of practical benefit to the staff in the course of their work; to arrange for lectures and debates on such subjects, and to institute prizes, medals, etc.; and to establish a library containing books on railway accounting and finance, as well as general accounts.

## KENYA & UGANDA

**Locust Infestation**

Considerable dislocation of train services is caused from time to time by swarms of locusts covering the track. The engine wheels crush the bodies of the locusts on the rails, which become slippery. Trains have frequently to be divided before the engine can pass the load through the section, and delays are usual. Swarms are at present active between Nakuru and Nairobi where the railway climbs steeply out of the Rift Valley between Escarpment and Uplands, and train delays averaging over an hour are being experienced. The Uganda mail train took 1 hr. 50 min. to cover a section normally timed at 24 min., and had to be divided.

Various expedients have been tried to combat this nuisance. First, steel brushes were fixed to the leading engine wheels, but were effective only in light infestations, and the brushes did not last long. Later, a locust train was provided from which the swarms were sprayed with an arsenical mixture. Now the Agricultural Department provides a locust clearance gang which moves to the area and effectively sprays the locusts with D.N.O.C. (dinitro ortho cresol). After a recent spraying, dead locusts were counted 1,200 to the square yard.

The railway administration co-operates with the Agricultural Department in its endeavour to control locust infestation by instructing all its stationmasters to telegraph the movements of locust swarms. The highest priority is given to the movement of locust bait.

**Railway Finance**

The Kenya Government has decided to exercise its option to redeem in September, 1946, the 6 per cent. loan of £5 million floated in 1921 at £95 per cent. (compulsory sinking fund of not less than 1 per cent. per annum). This loan was raised to meet the costs of railway, harbour, and other works, for the general development of the Colony, and certain loans advanced by the Treasury for public works, the Railways & Harbours proportion being £4,245,386.

The shortfall of approximately £1,800,000 in the sinking funds is being offered for conversion into £1,820,000 worth of 2¾ per cent. stock at £99 per cent. repayable 1971-76. There is little doubt that the whole of the conversion loan will be taken up, and the result will represent a reduction in interest and sinking fund charges of £151,500 to the railways and £59,200 to the harbours annually from 1947.

**Renewals Fund**

Between 1930 and 1945 depreciation contributions were temporarily reduced from a "life basis" to a rate of 2½ per cent. of the replacement cost of railway wasting assets, which was approximately one-sixth less than the full life contribution on a "straight-line" basis. A recent review of the renewals fund has disclosed that, while the intensive use of the wasting assets during the war has had little effect on the assessed lives of these assets, there is a considerable shortfall in the fund, due principally to the increased cost of replacements and short provisions.

It has been decided that, with effect from this year, contributions will be assessed on a full life sinking fund basis, the interest on contributions accruing to the fund instead of to revenue as in the past. At the same time it has been decided to make supplementary provision to make good the shortfall in the fund and to devote for this purpose part of the savings resulting from the redemption of the 1921 loan.

## CANADA

**Purchase of Manitoba Railways**

Final parliamentary approval was given by the Canadian Senate recently to a Bill to allow the Canadian National Railways to purchase the Manitoba Railways for $7,000,000. (See also *The Railway Gazette* of August 9.)

**Hudson Bay Railway**

The Hudson Bay Railway showed a deficit of $499,664 for the year 1945-46, compared with a loss of $564,940 the previous year. Operating revenues for 1945-1946 were $245,287, a reduction of $942 from the previous year. Operating expenses, at $651,400, were down $59,748. The Hudson Bay Railway is operated for the Government by the Canadian National Railways, and provides an outlet from the granary of the Middle West to Europe *via* the port of Churchill on the bay.

**Yellow Paint for Safety**

As a safety measure, the Canadian Pacific Railway is experimenting with yellow paint for the handrails of goods brake vans. The highly-visible yellow attracts the eye automatically to the handrails, so that railwaymen are less likely to miss their hold when grabbing them. In a somewhat similar experiment, the Canadian National Railways have painted brake vans orange instead of the traditional box-car red. The orange van stands out clearly to mark the end of a long freight train, making accidents less likely.

## UNITED STATES

**N.Y.C. Coast-to-Coast Services**

Between New York and Los Angeles or San Francisco there are now five through sleeping car services. All follow the New York Central main line as far as Chicago, whence they reach the Pacific seaboard over the various routes of eight different Western companies. As an example, the "Twentieth Century Limited," leaving New York at 5 p.m. daily, carries a through car which is worked round from La Salle Street Station (reached at 8 a.m. on the following day) to Dearborn station, Chicago, to be attached to "The Chief" which leaves at 12.01 p.m. Arrival at Los Angeles is at 10 a.m. on the fourth day after leaving New York. The other well-known trains associated in this scheme are: "The Commodore Vanderbilt," "The Exposition Flyer," "Lake Shore Limited," "Overland Limited," "The Water Level Limited," "Transcontinental Limited," "The Iroquois," and "Golden State Limited." Services are daily except for New York—Los Angeles *via* Kansas City and El Paso, and New York—San Francisco *via* Denver and Salt Lake City, which are every other day. West of Chicago, three routes are used to Los Angeles, and two to San Francisco.

## NORTHERN IRELAND

**Staff Reductions Likely**

Because of the falling off in freight and passenger traffic since the end of the war, staff reductions on the railways may be expected soon. The changeover to peacetime services inevitably must affect the size of staffs as receipts have fallen considerably; the U.S. forces alone accounted for heavy traffic. A railway union official states that lists of men who possibly may become redundant at the end of this month have been prepared by the companies. Many of the men to be displaced, however, will be able to take up work on British railways, where shortage of skilled labour still exists. Representatives of the four British companies have been in Belfast to make arrangements for obtaining recruits.

## FRANCE

**Diesel Shunting Locomotives**

Some of the 100 diesel locomotives built in the United States and acquired in part under the lend-lease agreement are already used for shunting in the port of Marseilles. The locomotives weigh 110 *tonnes* and are 55¾ ft. long. They are mounted on two three-axle bogies and fitted with a 660-h.p. diesel motor driving a dynamo supplying current to four traction motors each geared to an axle. Each engine can handle a train of 70 wagons in a marshalling yard, or, when necessary, two engines may be coupled and controlled by one driver to deal with very long trains of heavy wagons. In shunting operations, the diesel locomotives consume only 4½ gal. an hour on the average, making, it is claimed, the operating cost per hour two-thirds that of an equivalent steam locomotive.

**Future Diesel Programme**

Before the war the S.N.C.F. already had passed the experimental stage with its prototypes of diesel locomotives. Its present programme provides for a fleet of 200 diesel locomotives comprising the following types: Shunting engines of about 600 h.p. built in the United States; shunting engines of 500 h.p. designed by the S.N.C.F.; engines for mixed passenger and freight service on secondary lines of 1,000 to 1,200 h.p.; freight engines of 2,000 h.p. for slow goods trains; engines of 3,500 to 4,000 h.p. for fast passenger and freight services.

**Reconstructed Bridge Collapses**

A bridge over a canal at Port-de-Bouc, on the branch line from Marseilles to Maramas, near Arles, collapsed on the night of August 9-10 when a goods train was crossing. The engine, tender, and six wagons fell into the canal. The driver and fireman jumped off the engine and were only slightly injured. The bridge, a steel structure 88 yd. long, had been blown up by the Germans and temporarily reconstructed after the liberation.

XUM

# Re-Opening the Canton-Hankow Railway

*In spite of severe shortage of materials, the line was restored to a condition fit for limited traffic in six months*

*By S. S. Chen,*

*Deputy Managing Director, Canton-Hankow Railway*

THE re-opening of the 1,241 km. of railway from Canton to Hankow on July 1 this year was a surprise to the general public, both foreign and Chinese. The Canton-Hankow Railway was projected as far back as 1898, when Dr. Wu Ting-fong, the Chinese Ambassador to the United States of America, concluded an important construction agreement with an American company.

The construction, however, was subject to many interruptions and delays. The middle section, from Chuchow to Chukiang, a distance of 350 km., was not finally completed until August, 1936, and the whole of the line was then opened for traffic.

With the occupation of Canton and Hankow in 1938, and of Changsha and Hengyang in 1944 by the Japanese, the railway was subject incessantly to damage and dismantling. Out of 119 major bridges, 102 were destroyed, as were 160 out of 602 minor bridges; 5 long tunnels were blown up; all plant and equipment was damaged or lost; most buildings (offices, quarters and shops) were razed to the ground; all tracks were either damaged, removed, or deteriorated for lack of maintenance; and in many places, embankments were levelled and cuttings filled in.

In December, 1945, Mr. C. Y. Tu was appointed Managing Director of the railway, and reconstruction was then begun. Lack of funds, materials, and means of transport greatly hindered the reconstruction.

The difficulties resulting from the lack of materials and transport, in particular, proved almost insurmountable. No machines, no steel, no cement, no modern roads, and no vehicles were available.

The engineers in charge of construction had to contrive as best they could with primitive tools, local fir logs and bamboos, native wheelbarrows, and boats and rafts.

The major bridges, most of which are about 1,000 ft. long and 100 ft. high, have been reconstructed in timber, on timber trestles, which are usually of 3 or 4 storeys. Track materials have been obtained by dismantling some 200 km. of track from the Hunan-Kwangsi Railway, which was shipped on native boats and rafts to different points. Some track also has been supplied by U.N.R.R.A., but fishplates, bolts, and spikes have been improvised by local blacksmiths from old, unserviceable rails.

Mechanics, engineers, and traffic men are now working in temporary sheds or in the open air, or are using whatever equipment and tools are available.

Rolling stock is, of course, exceedingly scarce, and any which can be moved is put into use. Six locomotives have been provided by U.N.R.R.A. and others have been repaired by the use of various parts salvaged from the more seriously damaged locomotives.

### Difficulties Overcome

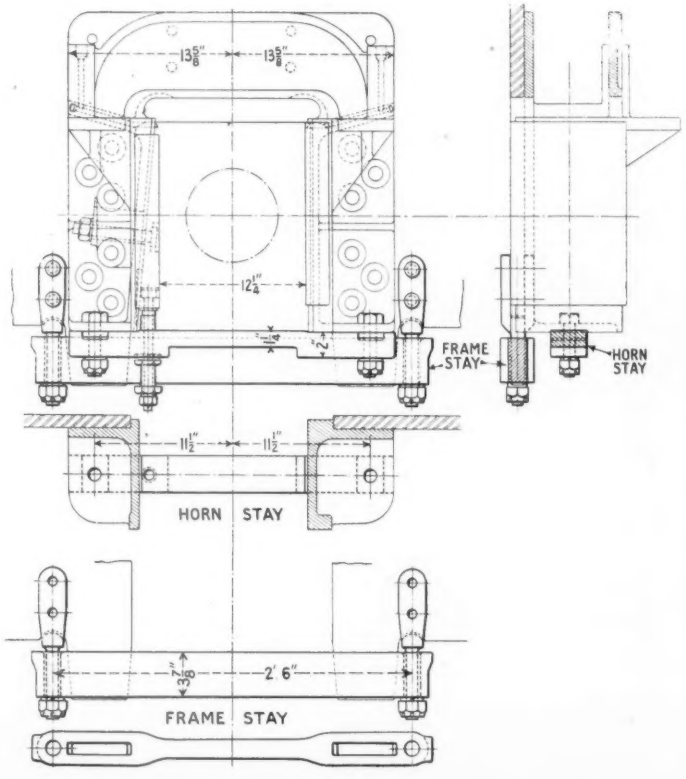
In spite of these difficulties, the railway was successfully re-opened to traffic in six months. Owing to the shortage of locomotives and rolling stock, only two through passenger trains in each direction are now being run between Canton and Hankow. In addition to this, some local passenger traffic is being carried on motor lorries.

As well as six locomotives, U.N.R.R.A. has to date supplied 1,000 wagons, and some cement, rails, and sleepers. Steel spans for the permanent repair of the bridges, and more locomotives, are urgently required, and have been requested from U.N.R.R.A. The railway authorities are eagerly awaiting the delivery of this material so that the capacity of the railway may be increased, in keeping with its important position.

## Hornstays for Coupled Wheels

The editorial note on page 262 in *The Railway Gazette* of March 16, 1945, under the heading "Hornstays for Coupled Wheels," elicited considerable interest at the time among our readers. We are now able to publish drawings of the arrangement of double hornstays—one across the frame gap and the other across the bottom of the hornblock—that has been the practice on the Indian State Railways for about 10 years. Actually, the side elevation appeared in our issue of December 1, 1939, but the additional drawings now included show more clearly the details of the frame stay.

One of the first locomotive types to be fitted with this design of hornblocks was the very successful "WL" class medium Pacific, built by the Vulcan Foundry Limited for the North Western Railway, and used on the Lahore-Peshawar main line north of Lala Musa, where the ruling gradient is 1 in 100. It is the fact that the overhead spring system is modern standard practice on the Indian State Railways, which makes this arrangement possible, and the latter certainly seems to have given satisfaction, so far as we can learn.

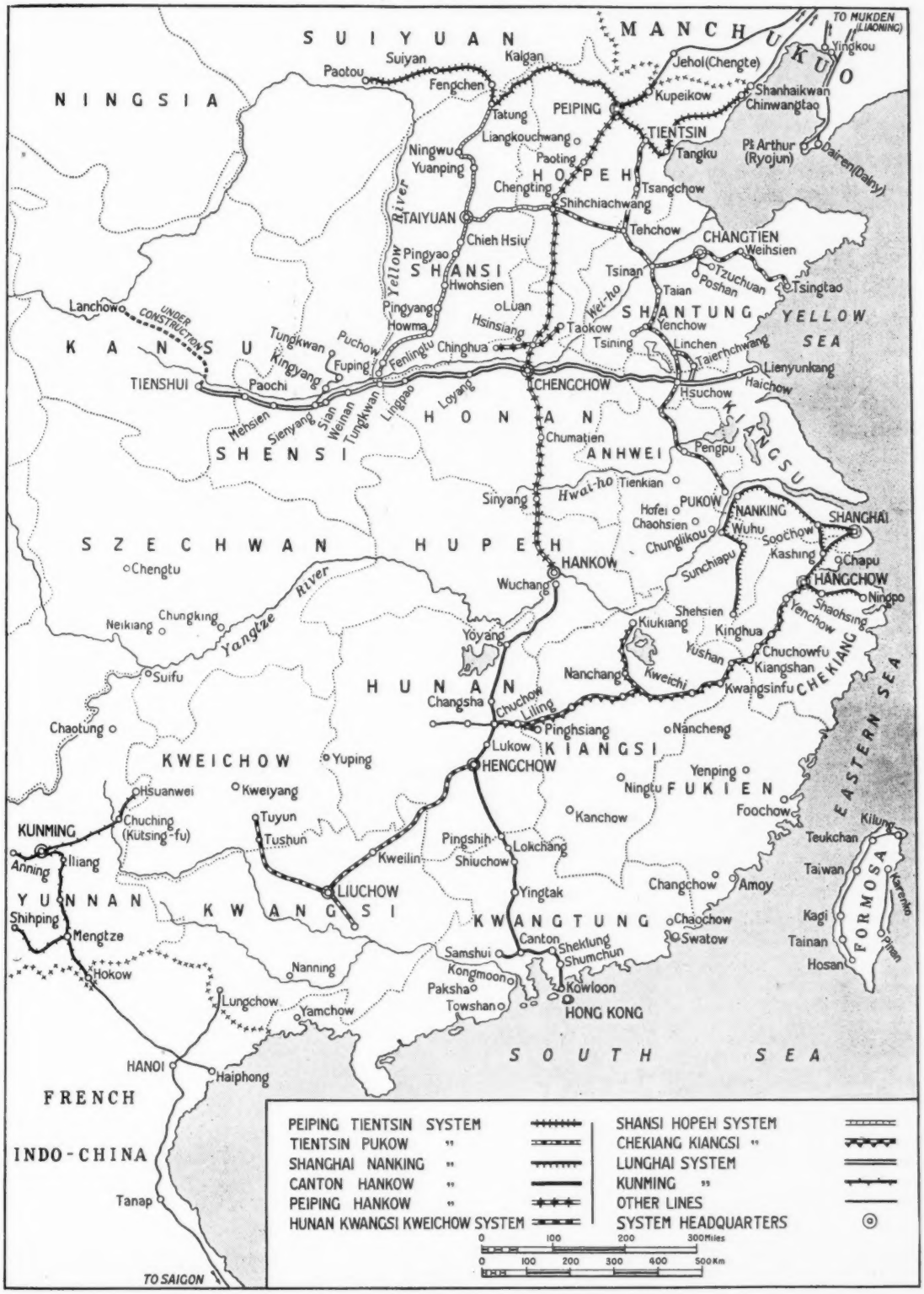



*Elevation and other details of Indian State Railways standard type of hornstay for coupled wheels*

ROAD ACCIDENTS IN JULY, 1946.—The return issued by the Ministry of Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of July last shows 437 deaths (comparing with 444 in July, 1945), 3,424 seriously injured (compared with 2,942 in July, 1945), and 11,316 slightly injured (compared with 9,486).

# Railway Re-Grouping in China

(*See editorial note on page* 286, *and article opposite*)

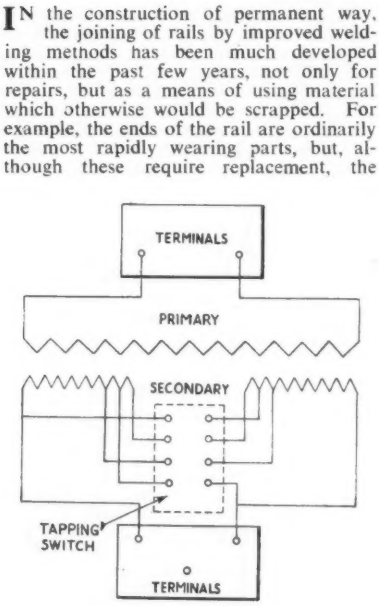



*Map showing re-grouping of the Chinese National Railways into ten systems*

# Portable Welders for Joining Rails

*A description of rail welding by special methods*

IN the construction of permanent way, the joining of rails by improved welding methods has been much developed within the past few years, not only for repairs, but as a means of using material which otherwise would be scrapped. For example, the ends of the rail are ordinarily the most rapidly wearing parts, but, although these require replacement, the middle part is quite fit for further use, although frequently ignored. Accordingly, the middle portions can be cut and welded to form new rails of greater length, and other rails, which happen to be damaged, can also be used. Apart from this, as each rail joint eliminated means a smoother journey for the train, the advantage of reducing the number of fish-plate joints and gaps between the rail-ends will be appreciated. Earlier conceptions of the number and measurement of the gaps appear to have lacked accuracy in respect of the expansion of the metal, and better use can be made nowadays of the more or less continuous, or jointless, rail.




*Circuit diagram of the welder used*

As the lengths of rail available from the rolling mill are limited, this feature has increased interest in modern welding developments. One of the most important features is the physical condition of the metal after welding, and although the ductility is slightly diminished, the ultimate tensile strength remains exactly the same.

To return the full ductility, heat treatment would be necessary, but this would be too complicated, particularly for modern portable welding outfits, which are mounted on the rails and run from place to place as required. The welded joint, therefore, is accepted as it is, but subjected to exhaustive tests and research, including bending, impact, and fatigue tests.

Besides the traditional X-ray examination, the falling-blow test, which soon reveals any blow-holes in the welded joint, is applied; a weight of 1 ton is allowed to fall freely from a height of 13 ft., the maximum with a welded joint, although a new rail will withstand the same ton-weight falling from a height of 20 ft. It is claimed, however, that recent improvements in the method of applying the welding obviate the possibility of blow-holes forming, and if this claim is justified, there is little reason to fear that rails jointed in this manner will fail in service.

An objection to portable welding sets in the ordinary way is that climatic conditions would necessitate special provisions in order to protect the operations, and the electricity supply might not always be at hand.

A study of the permanent way in different parts of the country will reveal whether or not the existing grid system is near. Other portable welders have a generating set driven by a diesel engine. The whole is mounted on a wheeled chassis complete with transport rollers, cold saw, centrifugal pump for cooling water, tanks for water, fuel, and lubricant, milling machine, and guide pieces, besides the usual alternator, exciter, and switchgear.

Two sections of the rail to be joined are clamped in the machine and brought together, and as the current passes through the point of contact, the metal is warmed; by repeated separation and re-union, an effective preheat is accorded to the ends.

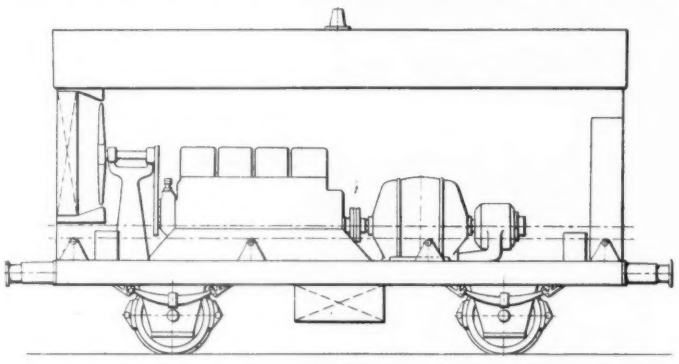
Flashing then follows, during which, by applying moderate force to the fixed piece, the rail is slowly pressed forward, and to the accompaniment of a shower of sparks, molten metal is ejected. The rails attain the desired temperature for welding during this treatment, and with a powerful upset motion become united. In short, the main features of the work are preheating, flashing, and upsetting, but this is done automatically, and flashing is implemented only when the joint has reached the correct temperature. When the surfaces no longer freeze, but fuse after being thrust together under moderate pressure, the desired temperatures have been reached.

During the forward movement, the pressure on the joint indicates the temperature attained, which is measured by the voltage drop, and is small when the pressure is great, but rises when the metal softens and the heavy load can no longer be sustained.

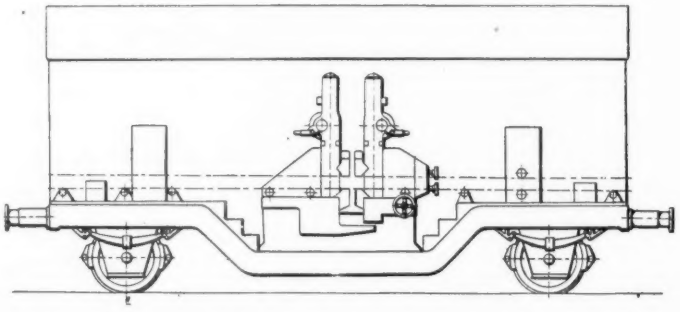
Voltage drop at the joint, therefore, controls the movement of the rails. Immediately after the rail ends touch, the relay, which is dependent on the voltage, automatically draws them apart, and so long as the voltage drop across the weld remains below a pre-determined limit, this process is repeated.

Flashing begins whenever there has been a sufficient rise in the potential, premature freezing is eliminated, and welding is successfully performed, but only after the correct preheating has been given to the joint. The consumption of electrical energy ranges from 3 to 4 kWh., and owing to flashing and upsetting, about 2 in. of the length of the rail are lost. It is difficult to give a true estimate of the time occupied in carrying out the welding, as this is dependent on the length and cross-section of the rails, and the distance the portable welding outfit has to traverse between each application of the process. Where the rail ends to be joined are at hand, from 7 to 10 joints an hour are made, and each weld requires two to three minutes. The difference between this form of automatic welding and manual welding is that irregularities and inaccuracies of the

(*Continued on page* 305)



*Drawing showing arrangement of the diesel engine, alternator, exciter, and tanks*



*Drawing showing welder receiving rails with the assistance of transport rollers and guide pieces, and making the connection*

# Swiss Traction Equipment Developments

*Summary of a paper by Mr. E. Schroeder, of the Traction Department of Brown Boveri & Company*

DURING recent years, development work on electric traction has concentrated on the problems of improving the speed and economy of electric locomotives and motor coaches and reducing their weight. This paper gives a brief summary of some of the improved features of the electrical and mechanical components manufactured by Brown Boveri & Company, and concludes with a review of some recent designs of locomotives, motor coaches, and street cars.

*Pantograph current collectors.*—A photograph of the latest design of pantograph is reproduced. This type of collector is suitable for speeds up to 180 km.p.h. (112 m.p.h.). It can be adapted for a.c. or d.c. systems, and can be fitted with aluminium, copper, or carbon sliding pieces. There are always two points contacting with the wire, so that only one current collector need be up. The weight of the new collector is 235 to 265 kg. according to width, compared with 550 to 650 kg. for older types.

*Main circuit breakers.*—Air blast circuit breakers are now fitted in place of the oil type. With a.c. circuit breakers, a considerable reduction in size and weight has been achieved in the new designs.

*Transformers.*—A new method has been adopted for building single-phase transformers. By laminating the core radially, arranging it in the centre of the transformer, and attaching several handle-shaped yokes, a round transformer with a cylindrical oil tank can be built. This design is much more compact than the standard type and the weight is about one-third less. Voltage control on a.c. locomotives is achieved by tap-changing on the high-tension side. The tapping switch is combined organically with the transformer.

*Driving motors.*—Driving motors generally are built with welded frames. The rotors are insulated with glass, and the armatures run on roller bearings. For the modern type of individual axle drive, motor speeds have been pushed up to the highest limits. The latest type of 1,000-h.p. motor for single-phase current weighs 4.1 metric tons.

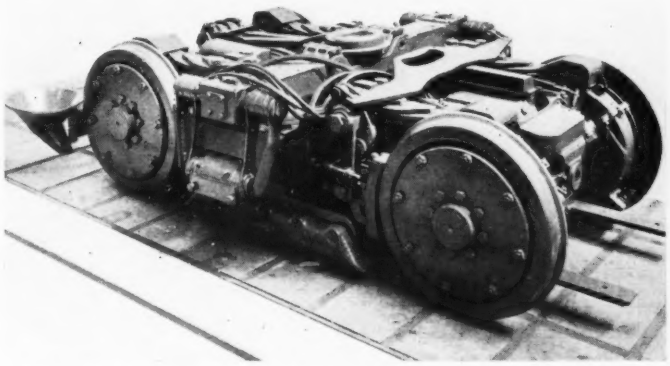
*Spring drives.*—The Buchli type of elastic drive has been used on most express locomotives in recent years. However, a later type of spring drive, with a short quill, has been produced, and has been adapted to a number of different vehicles including the "Re4/4" electric locomotives of the Swiss Federal Railways. Both these types of drive are illustrated.

The latest design is the elastic disc drive used on the new Bo-Bo type express locomotives of the Lötschberg Railway. This drive was fully described and illustrated in *The Railway Gazette* of August 16.

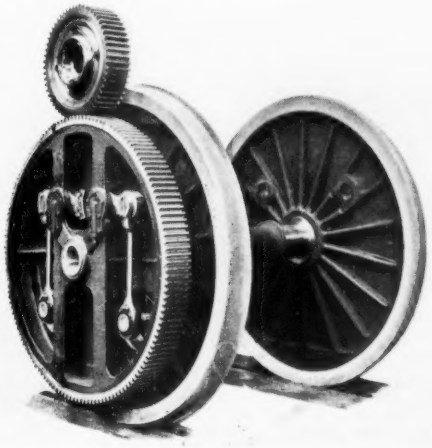
*Bogie design.*—A new type of motor bogie for street car lines and narrow-gauge railways has been produced. This design incorporates the elastic disc drive referred to above. There are two driving motors of 55 h.p. each. The block of driving motors forms the main structure of the bogie, and there is no proper bogie frame. As can be seen in the illustration, there are no axleboxes and axlebox guides in the customary way. The bearings are roller bearings carried in swinging arms, which are attached to the motor block.

For standard-gauge applications, a light-weight bogie has been designed on the same fundamental principles, and is illustrated herewith. The bogie has a light welded sheet-steel frame. The axles run

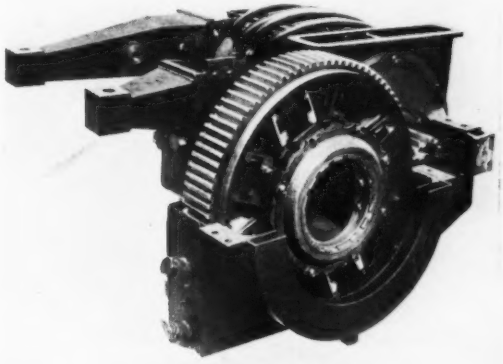
*New type of pantograph current collector*



*Motor bogie for tramways or narrow-gauge railways, with two driving motors of 55 h.p. each*

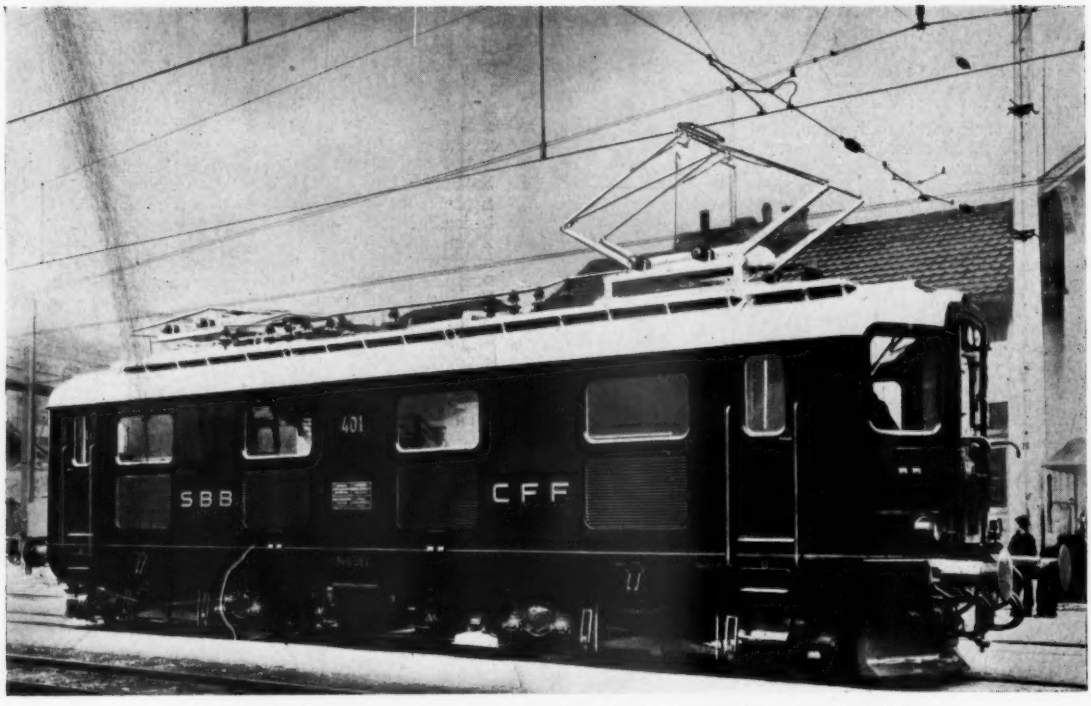


*Buchli elastic drive*

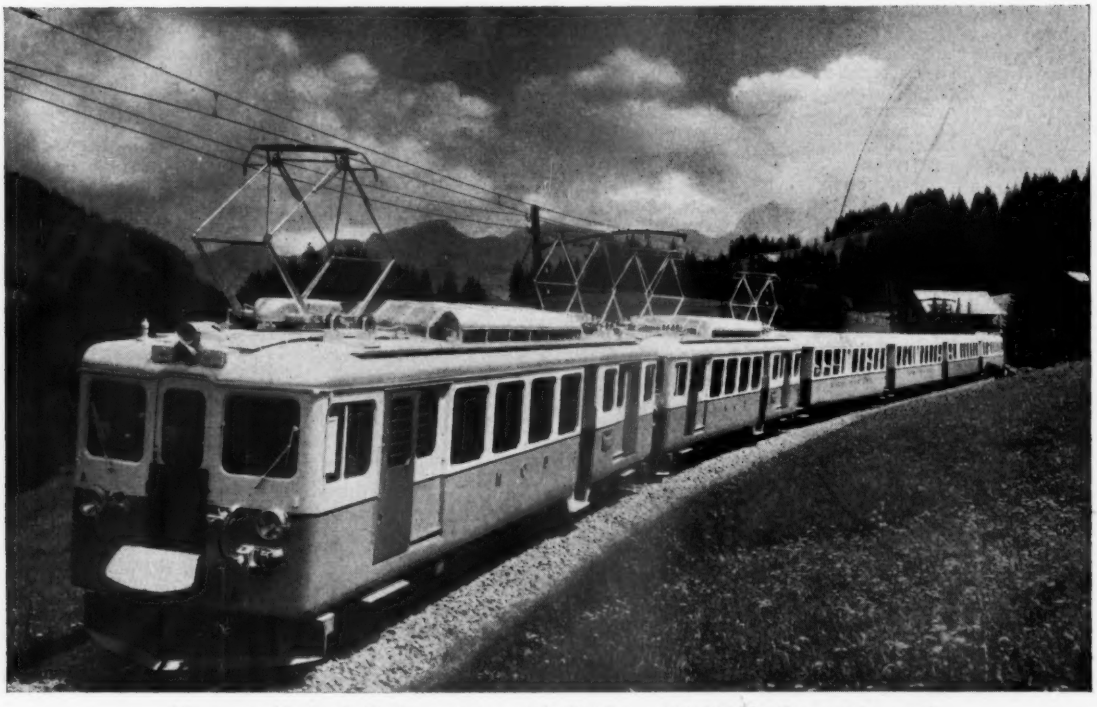


*Brown Boveri spring drive*

# Swiss Traction Equipment Developments




*Swiss Federal Railways 2,400-h.p. Bo-Bo electric locomotive, type "Re4/4"*

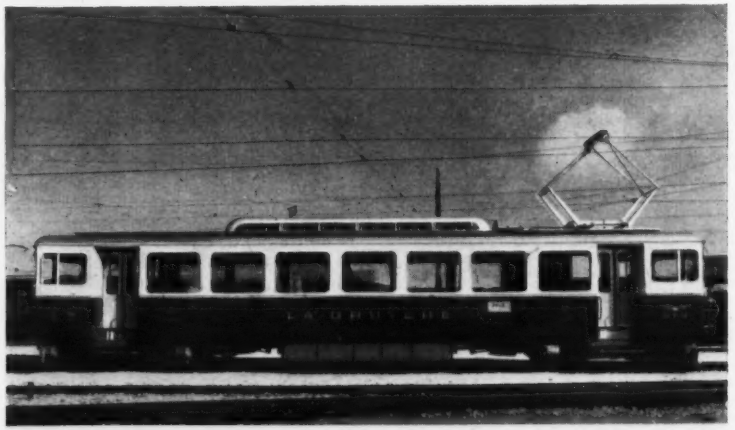


*Montreux-Oberland Railway train with 600-h.p., 800-900 V., d.c. motor coach*

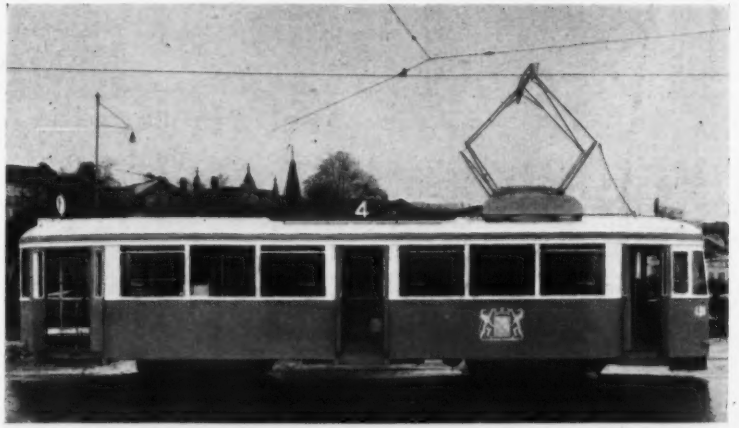
# Swiss Traction Equipment Developments

*Furka-Oberalp Railway car for adhesion and rack service*

*Rigi Mountain Railway car for rack service*



*Gruyère Railway metre-gauge 550-h.p. motor coach*



*Zurich City Tramways 220-h.p. lightweight car*

in roller bearings, which are linked to the frame by means of Silentblocs and arms. The arms carry the frame on helical springs.

A special type of power bogie, with two driving motors of 1,000 h.p. each, has been developed for the Bo-Bo type express locomotives of the Lötschberg Railway. These also were described and illustrated in *The Railway Gazette* of August 16.

**Recent Electric Traction Vehicles**

Several photographs of electric vehicles are reproduced on pages 298 and 299 and the following notes give the leading particulars.

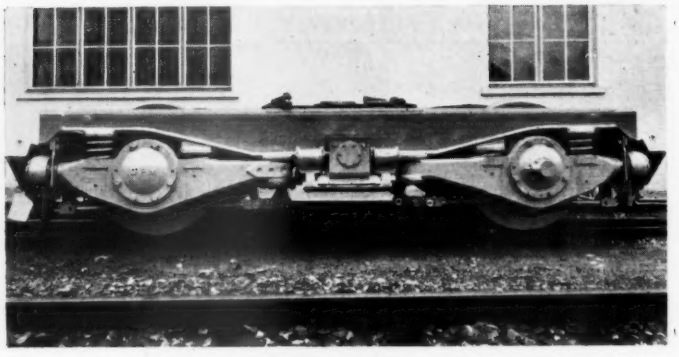
*Swiss Federal Railways Bo-Bo locomotive, Type "Re4/4."*—This locomotive is of 2,400 h.p., weighs 56 metric tons, and has a top speed of 125 km.p.h. Twenty-six have been ordered; they are fitted with Brown Boveri spring drive, radially-laminated transformer, and motor bogies of specially light construction.

*Montreux Oberland Railway motor coach.*—This motor coach is for operation on 800-900 V. d.c. and develops 600 h.p. The weight is 37.5 metric tons, and top speed 75 km.p.h. Electric resistance and regenerative braking are provided. Each motor coach seats 60 passengers.

*Furka-Oberalp Railway motor coach.*—This vehicle is for adhesion and rack service on the metric gauge. It is designed for operation on 11,000 V., single-phase, 16⅔ cycles, and develops 584 h.p. The weight is 35 metric tons, and top speeds are 55 km.p.h. on adhesion and 30 km.p.h. on rack sections. The vehicle seats 50.

*Rigi Mountain Railway lightweight car.*—This car is for rack service, and is of 440 h.p. The weight is 16 metric tons, and the speed 18 km.p.h. on a 25 per cent. gradient. The seating capacity is 70.

*Motor coach for the Gruyère Railway.*—This is a metre-gauge vehicle of 550 h.p., weighing 27.5 metric tons, and having a top speed of 75 km.p.h. The seating capacity is 50 passengers.



*Standard-gauge lightweight bogie*

*Zurich City Tramways lightweight car.*—These cars are claimed to be the most modern and the lightest street cars in Europe. They have four 550-V. 55 horse-power motors, weigh 13 metric tons empty, and have a top speed of 60 km.p.h. The capacity is 100 passengers.

Finally, the Bo-Bo type express locomotives of the Lötschberg Railway (described in *The Railway Gazette* of August 16) may be mentioned, as the culmination of a number of developments in electric locomotive design.

# Shoe Beams on London Transport Rolling Stock

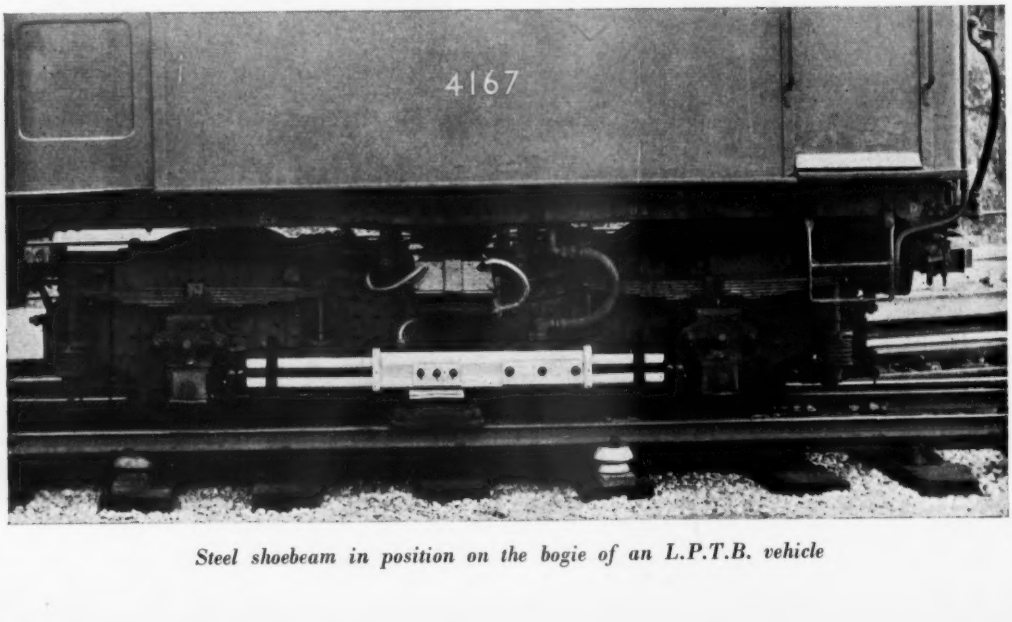
*Heavy-gauge steel steam tube assembly*

SINCE the earliest days of railway electrification it has been the general practice, where current was supplied through a conductor rail, to use a beam of wood to carry the collector shoes. It was a natural development to use this shoebeam to carry the tripcock on lines where automatic train stops are fitted. When supplies of high quality timber were readily available and speeds were relatively low, good service was obtained from these beams. The wood generally used in the earlier days was teak, which possessed good electrical qualities and fair mechanical strength.

Increased speeds and consequent increased strain on the beams led some railways to use oak, chiefly Austrian, in place of teak. With oak it was essential to use some form of additional insulation, as the specific resistance of oak is generally lower than teak.

Difficulty in obtaining suitable woods and the continued increase in the severity of the service has led London Transport to seek an alternative to the wooden beam. The illustration shows a steel shoebeam which has given trouble-free service. The beam consists of two lengths of solid drawn 1¼ in. heavy-gauge steam tube clamped at the ends to brackets which in turn are secured to the lugs on the axle boxes which originally carried the wooden beam. The bracket at one end is provided with an elongated hole for the securing bolt to allow for the relative movement between axlebox centres.

The outer cleats are welded to the tubes at the outer ends only. The only function of the welding is to hold the tubes longitudinally. The half cleats formed on the




*Steel shoebeam in position on the bogie of an L.P.T.B. vehicle*

fabricated brackets and the outer half cleats are machined to fit snugly on the tubes, and the ends are well radiused to avoid damage to, and high local stressing of, the tubes.

Each tube is insulated over the length between the cleats with varnished cambric treated between layers and overall with an insulating enamel. Over the portion of the tubes covered by the cleats which secure the shoe-suspension bracket and the tripcock, additional protection is provided in the form of a pressboard wrap encircling both tubes and secured by stitching along the open side.

To avoid the formation of a pocket between the tubes and this wrap, in which dirt would collect, the space is filled by a vulcanised fibre packing piece. The pressboard wrap has the ends retained by wooden cleats, the halves of which are joined together by wood screws. The pressboard wrap and wooden cleats are treated with insulating enamel before and after assembly. The shoe bracket and tripcock are secured by cleats which embrace the tubes. The belts clamping the half cleats together pass between the tubes. Safety loops are provided on the truck frame at each end of the beam.

Results so far show that this metallic shoebeam is mechanically and electrically an improvement on the wooden beam, and for existing stock provides a satisfactory solution to the timber shortage. For new rolling stock it is considered that still further improvement can be made by dispensing with shoebeams and thus reducing the unsprung weight on the wheels.

## "Sleepy Hollow" Chairs for C.P.R. Coaches

*New-type seating for some of the first passenger vehicles ordered by the company since* 1939

*The foot-rest of a "Sleepy Hollow" chair, which is brought into position by means of the pedal shown in the illustration*

NEW-TYPE adjustable railway coach seats, known as "Sleepy Hollow" chairs, are to be installed in 35 new air-conditioned passenger coaches due for delivery early next year to the Canadian Pacific Railway. This new rolling stock represents part of a $4 million appropriation (the first large passenger equipment order it has been possible for the company to make since 1939), which includes double bedroom-roomette cars and express-baggage vans.

The "Sleepy Hollow" chairs are made in Canada by the Heywood-Wakefield Company and the Railway & Power Engineering Corporation. They are specially designed to "give" with body curves and distribute weight well. The new chair is sometimes referred to as the "Hooton" chair, because of the research carried out by Dr. Ernest Hooton, of Harvard University. To arrive at the "average railway passenger," Dr. Hooton's research workers measured 3,867 volunteers in the railway terminals of two of the largest cities in America. Deep cushioning, an inclined back, and foot-rests are among the features of the chair.

The frames of the coaches are being provided by the National Steel Car Corporation, and they will be finished at the C.P.R. Angus Shops.

SOUTH AFRICAN RAILWAY EARNINGS.—Railway earnings in South Africa for the period June 30 to July 27 amounted to £4,490,571, compared with £4,059,117 in the previous corresponding period.

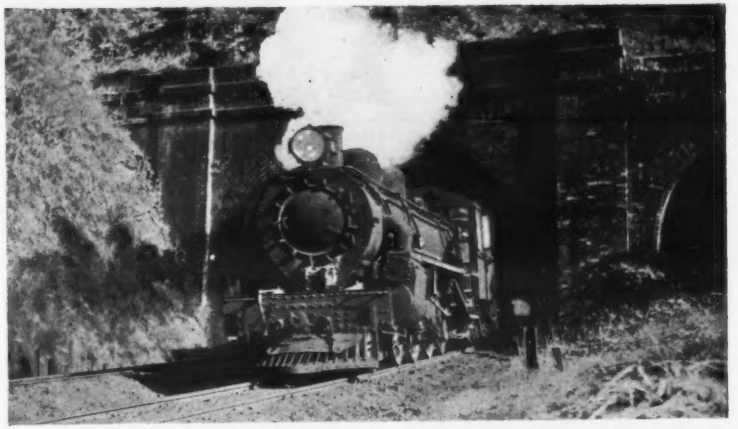
TECHNICAL MISSION TO THE CARIBBEAN.—A technical mission will shortly make a three months' tour of the oilfields and refineries in Trinidad, Venezuela, and Colombia. An invitation to visit the oilfields was extended by one of the petroleum companies to the United Steel Cos. Ltd., which for many years before the war had been engaged in special research work for the production of steels to resist the difficult conditions in the drilling and refining of petroleum. Further consideration showed that problems other than metallurgical might be encountered, and member firms of the Council of British Manufacturers of Petroleum Equipment were approached, and readily agreed to co-operate.

Although all the personnel of the present mission are members of the Council, the mission is really a private one, organised and financed by the members themselves. Every support is being accorded by the Ministry of Fuel & Power, and the Export Development Department, Board of Trade. On arrival in Trinidad a public reception will be held by the Governor-General; the President of Venezuela also has expressed a wish to receive the members. The mission is under the leadership of Mr. G. R. Bolsover, Director & Chief Metallurgist of Samuel Fox & Co. Ltd. (branch of the United Steel Cos. Ltd.), and the following are its members:—

Messrs. E. E. Allen (Industrial & Engineering Development Association); D. H. Carter (Head, Wrightson Processes Limited); A. G. Ellison (Yorkshire Copper Works Limited); E. T. Forestier (Newman, Hender & Co. Ltd.); E. F. E. Howard (Hayward, Tyler & Co. Ltd., also representing other firms); F. Kenyon (Wiliam Kenyon & Sons Ltd.); H. Martin (Murex Welding Processes Limited); E. Pritchard (Britsh Oilfields Equipment Co. Ltd.); and G. H. Thorne (Dawnays Limited).

# Railway Scenes in the North Island of New Zealand

*Auckland to Opua express on the Parnell bank, hauled by class "J" 4-8-2 locomotive No. 1207, built by the North British Locomotive Co. Ltd.*



*"Ab" class 4-6-2 locomotive, running light, emerging from the Parnell Tunnel on the Auckland-Opua line*

*Auckland to Wellington train at Auckland, headed by "Ka" class 4-8-4, No. 949*

*Photos]*

*"K" class 4-8-4, No. 907, leaving Auckland Station on the 3 p.m. express to Wellington*

*[W. W. Stewart*

# RAILWAY NEWS SECTION

## PERSONAL

Sir John Anderson has been elected a member of the board of the Hudson's Bay Company. He is a Director of the Southern Railway Company, and of the Canadian Pacific Railway Company.

Brigadier-General Sir Godfrey D. Rhodes, C.B., C.B.E., D.S.O., formerly General Manager of the Kenya & Uganda Railways & Harbours, and more recently Director of Transportation in Persia, has opened an office as a Consulting Engineer and will be working in collaboration with the firm of Sir Alexander Gibb & Partners.

Mr. H. C. Lusty, Chief Engineer, New Zealand Government Railways, left on a visit to South Africa, the United Kingdom and North America. He will be particularly concerned with investigating the types of track and station layout found most suitable for electric trains; and he will study also the handling of Underground traffic in London.

Mr. C. C. Hall and Mr. A. E. Thornton have been appointed Special Directors of Firth-Vickers Stainless Steels Limited.

We regret to record the death on September 2, at the age of 57, of Mr. Gilbert Gledhill, a Director of Gledhill-Brook Time Recorders Limited.

Among promotions gazetted recently, under the heading of Regular Army—Royal Engineers, is that of Captain D. R. Stenhouse, M.B.E., to be Major.

Sir W. Griffiths (Mond Nickel Co. Ltd.), Mr. H. J. Allcock (British Insulated Callender's Cables Limited), and Mr. Christopher F. S. Taylor (Rhokana Corporation Limited) have been appointed to the management committee of the Copper Development Association.

IRON & STEEL BOARD

The Minister of Supply has appointed the following to be members of the Iron & Steel Board:—Sir Archibald Forbes (Chairman), Director, Spillers Limited; lately Controller of Repair, Equipment & Oversea Supplies, Ministry of Aircraft production); Sir Alan Barlow (a Joint Second Secretary of the Treasury); Mr. A. Callighan (General Secretary), National Union of Blast Furnacemen); Mr. Lincoln Evans (General Secretary, Iron & Steel Trade Confederation); Mr. G. H. Latham (Chairman & Managing Director, Whitehead Iron & Steel Co. Ltd.; President-elect, British Iron & Steel Federation); Mr. R. Mather (Chairman & Managing Director, Skinningrove Iron Co. Ltd.). Mr. A. C. Boddis, of the Ministry of Supply, has been appointed Secretary of the Board. An additional member with experience of general industry is to be appointed; his name will be announced shortly. At the special request of the Government, Spillers Limited has agreed to release Sir Archibald Forbes from his executive duties to become first Chairman of the Board.

Mr. John Shearman, M.I.Mech.E., M.I.A.E., who, as recorded in our September 6 issue, has retired from the position of Road Motor Engineer, L.M.S.R., was educated at Westminster School and in 1903 went to the L.N.W.R. Locomotive Works, Crewe, as a premium apprentice; he combined his apprenticeship with study at the Crystal Palace School of Engineering and University College, London. After a year as a pupil of the late Mr. G. Whale, then Chief Mechanical Engineer, L.N.W.R., Mr. Shearman went into the drawing office at Crewe. Subsequently he held appointments as Assistant Locomotive Foreman, Rugby; Locomotive Foreman, Bushbury, Wolverhampton; Assistant to Locomotive Running Superintendent, Crewe; and, in 1914, Outdoor Assistant to Superintendent of the Line. On the outbreak of war in that year he rejoined the Inns of Court O.T.C. He later was commissioned in the A.S.C. (Mechanical Transport), and went to France in 1915 as Workshop Officer, 19th Divisional Ammunition Park, which he subsequently commanded in France until nearly the end of the war. On his return to the L.N.W.R., he received an appointment under the Road Motor Superintendent at Euston. He was appointed Road Motor Engineer, L.M.S.R., in 1925. Mr. Shearman is a railway-nominated Director of Ribble Motor Services Limited, Cumberland Motor Services Limited and Crosville Motor Services Limited. He was Chairman of the R.E.C. Road Committee from 1942 to 1945. He was President of the Institution of Automobile Engineers for 1944-45. In 1938 he presented a paper before the Institution on "Commercial Motor Vehicles for Short-Mileage Work," an abstract of which was published in *The Railway Gazette* of November 18 and of December 16, 1938. For that paper he was awarded the Crompton Medal. His presidential address to the Institution was summarised in *The Railway Gazette* of October 13, 1944. Mr. Shearman was Chairman for three years of the Automobile Research Committee of the Institution. He was Chairman and member of committees during the recent war advising Government departments on alternative motor fuels.

[*Elliott* [*& Fry*

*Mr. John Shearman*

Road Motor Engineer, L.M.S.R., 1925-46

INDIAN RAILWAY STAFF CHANGES

Mr. W. S. Benton, Director, Civil Engineering, Railway Board, has been granted leave preparatory to retirement for 15 months as from April 20. Rai Bahadur P. C. Bahl, Joint Director, has been appointed to officiate as Director, Civil Engineering, in place of Mr. Benton.

Mr. P. M. Joseph has been appointed Director, Railway Clearing Accounts Office.

Khan Bahadur Q.Z. Hussain, Chief Engineer, B.A.R., has been granted two years' leave preparatory to retirement as from March 15.

Mr. G. C. K. Jolley, Controller of Stores, B.B.C.I.R., has been granted six months' leave as from May 15. Mr. M. K. Kaul has been appointed to officiate as Controller of Stores, B.B.C.I.R., from the same date.

Mr. A. O. H. Morrison, Officiating Chief Engineer, B.-N.R., has been granted 18 months' leave preparatory to retirement as from April 1.

Brigadier J. E. Clutterbuck has been appointed to officiate as Chief Engineer, G.I.P.R., in place of Mr. W. Hood, officiating as General Manager.

Mr. K. C. Bakhle has been appointed to officiate as Controller of Stores, G.I.P.R., as from May 1.

Mr. William Darcy, Divisional Chemist, Research Department, Crewe, L.M.S.R., whose death, on August 26, in a train at Hellifield Station, was recorded in our September 6 issue, was born on September 5, 1885, and entered the service of the Lancashire & Yorkshire Railway at Horwich as apprentice chemist in 1898. He was promoted Chief Assistant Chemist, Horwich, in 1918, and was appointed Divisional Chemist (Scotland), L.M.S.R., in 1928. Mr. Darcy became Divisional Chemist, Crewe, in September, 1943. The funeral took place at Horwich.

Mr. G. Lovelady, District Operating Manager, Leeds, L.M.S.R., who, as recorded in our September 6 issue, has been appointed District Operating Manager, Leicester, joined the L.N.W.R. in 1906 at Liverpool. After service there and at Crewe, he served in H.M. Forces from 1914 to 1919. He resumed railway duty as Relief Controller, Edge Hill and Warrington Districts, and in 1920 went to the District Superintendent's Office, Liverpool, before being transferred to Manchester

XUM

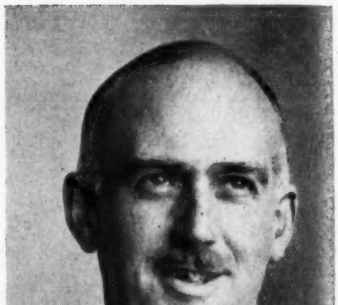
*Mr. G. Lovelady*

Appointed District Operating Manager, Leicester, L.M.S.R.

(Hunt's Bank) on the amalgamation of the L.N.W.R. and L.Y.R. in 1922. In 1924 he was transferred to the Trains Office, Crewe, L.M.S.R., and in 1931 was appointed Assistant District Controller, Warrington. Two years later he became Head Office Inspector, Freight Services Section, Midland Division, Derby, which position he held until 1939, when he was appointed Head of Merchandise Services Section, Chief Commercial Manager's Department. Mr. Lovelady was made Assistant, Freight Services Section, Chief Operating Manager's Department, in the next year, and in June, 1945, was appointed District Operating Manager, Leeds.

Mr. Norman R. A. Biles has resigned his position as Publicity Manager, Blackburn Aircraft Limited, to take up a post in a similar capacity with John Fowler & Co. (Leeds) Ltd.

Mr. F. J. Hibbert, Assistant District Operating Manager, Leeds, L.M.S.R., who, as recorded in our September 6 issue, has been appointed District Operating Manager, Leeds, was born on May 3, 1904, and joined the Midland Railway at Borrowash in 1921. After obtaining varied experience he served at Crewe, Birmingham and Chester, and went to Derby in 1931 as a member of the Traffic Analysis Committee. Mr. Hibbert subsequently held appointments as Head Office Freight Inspector, attached to Office of Divisional Superintendent of Operation, Derby; Assistant Station Master, Heysham Harbour; and Assistant District Controller, Kentish Town. In March, 1940, he was commissioned as 2nd Lieut., R.E., and he saw active service in Northern Norway. In January, 1941, he was released temporarily from the Army and was attached to the staff of the Divisional Superintendent of Operation, Derby, and later at Watford H.Q., but in July, 1942, rejoined the Forces and served as Staff Captain, Birkenhead, and later as Assistant Director of Transportation, War Office, in charge



*Mr. F. J. Hibbert*

Appointed District Operating Manager, Leeds, L.M.S.R.

of the movement of all War Department stores export traffic. After being appointed in June, 1945, Assistant (Freight Services), Chief Operating Manager's Office, he resumed his duties with the company in October, having been demobilised with the rank of Lt.-Colonel. He was appointed Assistant District Operating Manager, Leeds, last March.

## A British-Built Locomotive on Heavy Goods Work in South Africa

*Class "15 F" locomotive, on a 1,490-ton goods train between Uitbank and Germiston (Transvaal). A large number of these locomotives has been delivered by the North British Locomotive Co. Ltd. and Beyer, Peacock & Co. Ltd.*

## British Engineering Firms at Overseas Exhibitions

An early lead was taken this year by the British Engineers' Small Tools & Equipment Co. Ltd. in staging exhibits at the International Trade Fairs at Utrecht, Stockholm, Lyons, Paris, and Barcelona, and, encouraged by the success of these exhibitions, this export organisation now announces plans for further participation at similar events in the near future.

Products of B.E.S.T.E.C. members will be on show at the Trade Fairs taking place this month at Smyrna and Milan, and plans for even more comprehensive displays concern the Melbourne Exhibition, 1947, and the first post-war British Industries Fair to be held in London and Birmingham next year. One of the founder members, the Coventry Gauge & Tool Co. Ltd. is now holding at Dundee a second exhibition of some recent developments in precision engineering equipment.

Further appointments of B.E.S.T.E.C. overseas agents have recently been made in India, Rhodesia, Kenya, Uganda, Tanganyika, Brazil, Venezuela, Italy, Norway, Portugal, Switzerland, and Iceland, and will help to complete the wide coverage of the organisation which is now represented in more than 35 territories.

In addition to various agency appointments already made in South America, the organisation is shortly sending out its own representative, Mr. A. G. Noble, M.C., A.M.I.Mech.E., M.I.Loco.E., who will leave London in October, making Montevideo his first port of call, and eventually visit all South American Republics.

## Improved Conditions for Australian P.W. Gangs

Although it has been possible since the end of the war to obtain more men for permanent way work in Western Australia, the number employed is still insufficient. The department realises that it is necessary to provide better living conditions for men working long distances from country and goldfields towns, and, where possible, it has permitted men working in isolated areas to live in the nearest town, even though this has meant extra expense and less satisfactory working arrangements.

In other places, permanent way men are being supplied with cabins in place of tents until improved housing accommodation can be provided. It is intended to provide additional lunch and change rooms and washing facilities at the principal depots. In an effort to overtake the lag in resleepering, mobile gangs will be employed who will move to different parts of the State as required.

Apart from this work, there is a big leeway to make up in overhauling the signal, telephone, and interlocking systems, and in renovations and renewals of stations and other property. In the next five years the department will be a very heavy buyer of paint.

### Removing Speed Restrictions

As the rehabilitation programme proceeds, speed restrictions will be lifted and faster and smoother running will be possible. The general improvement of railway property, including rolling stock, is expected to have a favourable influence on the attitude of the public to railway travel, and, in a measure, to compensate the department's employees for the difficult conditions they experienced during the war.

Among the departmental officers there is a sincere desire to give the public better service, and they are anxious that this should be done as quickly as possible and without stint. They are as keenly aware as any other Australian railwaymen of the requirements of modern transport, and in all branches of the department one finds an enthusiastic approach to the 10-year programme, on which the future of the system so largely depends.

Apart from the rehabilitation programme, some of the important new works which the department is planning include the duplication of sections of the main South-West line and the installation of additional signal facilities to increase the capacity of the duplicated line, the elimination of the single-line bottleneck over the river between East Perth and Rivervale; and the extension of automatic signalling from Wooroloo to Spencer's Brook on the Eastern line.

## The Gold Coast Railway, 1939-45

Curtailment of road transport and the concentration of shipping at the port of Takoradi—control of which is vested in the general manager of the railway—threw a heavy burden on the Gold Coast Railway during the war. In addition to the normal internal goods and passenger traffic, the needs of the three services had to be met. The R.A.F. and R.N. established important bases at Takoradi, and this port bore the brunt of heavy troop movements in connection with the expedition of Gold Coast military contingents.

The tonnage of timber handled, according to an account of the war activities of the Gold Coast Railway and Takoradi Harbour, which has been compiled by Major C. R. Turner, General Manager & Harbour Authority, increased from 8,894 in 1939-40 to no less than 66,095 in the year 1944-45.

Bauxite began to be exported during the war; the latest annual tonnage figure is 129,425. Manganese was the principal commodity carried; the 1939-40 tonnage of 465,996 increased to 622,535 in 1944-45. Passenger traffic underwent a similar increase, from 3,215,600 in 1939-40 to 6,140,345. Despite these great increases, however, there was no relief to locomotives and rolling stock until 1944, when eleven American and six Garratt locomotives, 100 American vans, and 290 American open wagons arrived to swell the locomotive total to 98 and that of coaches and goods vehicles to 167 and 1,407 respectively.

Demands also were made by the Services on the Mechanical and Electrical Departments of the G.C.R., already faced with heavy maintenance resulting from the increased engine and vehicle mileage. In 1939-40 engine mileage was 1,735,626 and vehicle mileage 9,773; these figures in 1944-45 were 2,499,702 and 13,884. Night and day operations on the main line became a necessity during the war, and required the augmentation of the African footplate, shed, and workshops personnel. In some cases drivers with fifteen months' shunting experience were put on main-line work.

The expansion of Takoradi harbour necessitated an increase in installations and cranage facilities. A dry dock was constructed by the engineering branch of the Railway Administration. As imported steel sleepers were unobtainable, local timber sleepers were used and laid untreated; they will now be creosoted in a new plant. In 1942 the density of traffic between the manganese centre of Nsuta and Takoradi had so increased as to require five new crossing stations on the section. At Takoradi itself, despite the number of passenger and cargo ships of longer and of greater tonnage than the port had been built to handle, no untoward incidents occurred.

## Portable Welder for Joining Rails

(*Concluded from page* 296)

human element are largely eliminated, which obviates much of the testing which would otherwise be necessary, as each weld is the same as its predecessor. It is even claimed that testing is no longer required.

Although most models are equipped with motor generators, a more recent development is the use of alternating current static, or non-rotary, transformers, which involve no maintenance expenditure. Researches revealed that specially constructed single-phase transformers, as distinct from the traditional Scott-connected transformer, could ensure sensitive current adjustment where required. For equal welding currents, the cost of power is cheaper than with the direct-current machine. Where, however, the work is limited specifically to joining the same class of rails, —because of the pressure required and as the rails have to be strongly upset when flashing is completed—motors are generally preferred. Single-phase, oil-immersed, water-cooled transformers, equipped with voltage regulating switch containing 16 steps are used.

The four jaws used for clamping the work are water cooled and of hard copper. One pair of jaws is carried to and fro with the moving section of the rail, and the other set fixed in a horizontal direction. The upper jaws are raised and lowered by a three-phase motor, which in turn is controlled by a lever. The energy from the motors is transferred during the upsetting motion through a powerful spring which closes until the desired adjusted upset pressure has been reached; the motors are switched out and braked at the same moment.

Centrally applied upset pressure is given by guides which are of liberal dimensions over the entire length of the machine. The automatic control instruments, with their accompanying contactors and switches, are housed in a small cabinet, and the more sensitive relays and instruments in a separate box. In conclusion, much of the scrap which otherwise would be left over when points and crossings have to be cut, can be used, as the portable outfit is run without delay to the site on the permanent way where it is most required.

Transport of Straw.—The Minister of Transport has made the Transport of Straw (Revocation Order), 1946.

Travel to and from Channel Islands.—The Southern Railway announces that as from October 7 passengers travelling between Southampton and Jersey or Guernsey will no longer require sailing tickets. This will apply to sailings in either direction. From the same date seats may be reserved in advance (1s. booking fee) on the following boat trains:—9 p.m., Waterloo to Southampton Docks (Mondays, Wednesdays, and Fridays); 5.20 p.m. Southampton Docks to Waterloo (Mondays, Wednesdays, and Fridays).

## South African Mission in Canada and U.S.A.

The South African Railways Purchasing Mission, of which the arrival in England was recorded in our March 15 issue, has been touring the United States and Canada since May last. While in this country, the mission, which is led by Mr. D. H. C. du Plessis, Chief Harbour, Shipping and Development Manager, South African Railways & Harbours, was concerned with the expedition of the large orders for locomotives, rolling stock, and electric equipment which South Africa has placed with British manufacturers.

Mr. du Plessis stated recently in Montreal that orders had been placed with an Ontario factory for 1,500 railway cars, and that other orders for materials had been placed in the United States and Canada.

They formed part of South Africa's ten-year transport development programme, which included the building of the three large international airports at Capetown, Johannesburg, and Durban; four large combination railway stations and office buildings; a railway to open up the new goldfield in the Orange Free State; and the electrification of 200 miles of the Capetown-Johannesburg line with the object of speeding up the service.

During the past five years Canada had supplied South Africa with £3,750,000 of railway equipment. The nautical adviser to the party had contacted Canadian shipping interests with a view to purchasing ships. The experts would visit Argentina for a fortnight on their way home from New York.

Mr. du Plessis said that it was difficult to compare South African and Canadian railways because of the difference in gauge. Also, South Africa used only one type of combination sleeper coach, by reason of the long distances usually travelled. Air travel was making rapid strides in the Union, both internally and in the operation of the British route in combination with B.O.A.C. He did not think that the railways would be superseded by airways; during the war the railways had proved their worth all over the world.

In all countries visited by the party in the last six months, except for Switzerland, which relatively had been unaffected by the war, it had found similar schemes of expansion to that of South Africa.

## Ruston & Hornsby Diesel Locomotives

A considerable number of diesel locomotives of varying sizes and gauges were inspected at the Boultham Works, Lincoln, of Ruston & Hornsby Limited on September 3, by representatives of U.N.R.R.A., the Ministry of Supply, and the technical press. Some of the vehicles were on the multi-gauge test track, some engaged in yard shunting, and others were under erection or shop test.

Ruston & Hornsby Limited, as one of the earliest producers of oil engines, was quick to appreciate the need for small diesel-mechanical shunting engines, and to supply these in all gauges and powers up to 165 b.h.p.; a considerable proportion are of the flame-proof type for use in mines.

Having driven and observed the performance of various types on the test track, the representatives studied constructional details. Ruston's all-welded frames were thought to be almost too substantial, until the shocks from the dumb-buffers and occasional derailments were considered.

The gearbox design was also closely studied. This design, which gives three speeds in each direction, has a separate clutch for each constant-mesh gear and an independent reverse lever. Raybestos clutch rings are being used in all but the largest locomotives, where a metal-to-metal design is adopted. One of these latter gearboxes, after several months of shunting service on the L.N.E.R., was stripped and laid out for inspection, to show that no appreciable clutch wear had resulted.

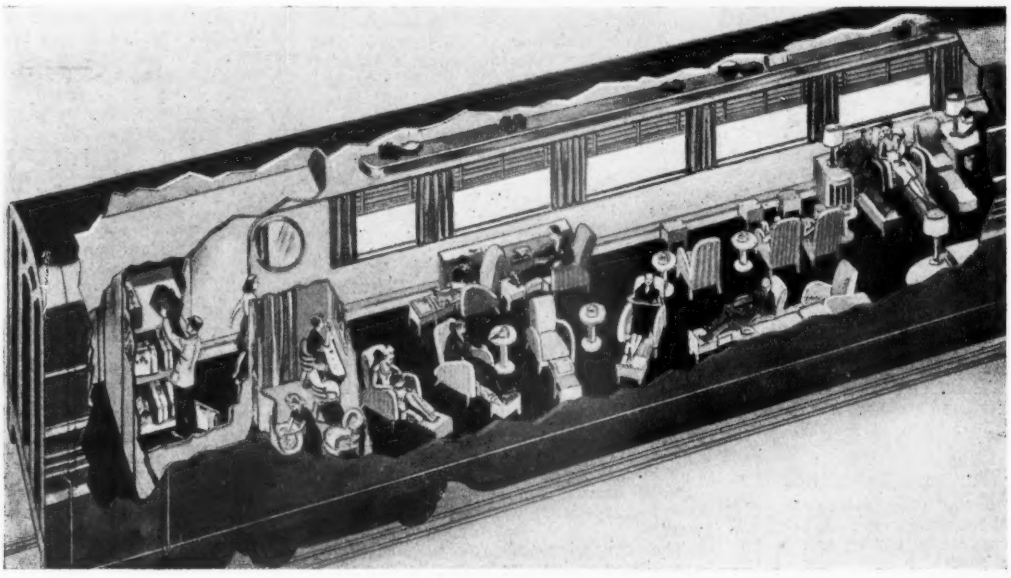
Whereas the largest locomotives are driven by jackshafts and side rods, the others have roller-chain drive. This was at first considered by the representatives to be a doubtful feature, but spokesmen of Ruston's were able to produce data which showed that the length of chain life and the low replacement costs made the design an economic proposition.

Considerable ingenuity was in evidence in the flame-proofing of the mining locomotives. In these, the unburstable exhaust boxes and exhaust pipes, both cool and silence the exhaust gases, rendering them safe in even the most gassy mines.

The erecting shops, which are large, well lighted, and orderly, created a favourable impression, as did the ample amenities provided for the technicians. A very favourable impression was created, also, of the company's designers, craftsmen, and various products.

FISHBOLTS AND NUTS FOR RAILWAY RAILS.—A revision of British Standard 64 for steel fishbolts and nuts for railway rails has recently been issued. The following are the principal features dealt with in the revision: Quality of steel: unscrewing test; screw threads; range of sizes; and weights. Copies of the revised specification (B.S. No. 64: 1946) are obtainable from the Publications Department, British Standards Institution, 28, Victoria Street, London, S.W.1 (price 2s.).

## New-Type Day Coach for American Railways



*Longitudinal section of part of a new design for a day coach prepared by the Pullman-Standard Car Manufacturing Company; the seats are a feature of the design and consist of a reclining lounge chair with folding ottoman to form a leg rest*

# G.N.R. (Ireland) Display at Dublin Show

*Working model railway with automatic control of trains on single-line section representing the Boyne Viaduct*

A FEATURE of railway interest at the recent Royal Dublin Society's Show at Ballsbridge, Dublin, was the stand of the Great Northern Railway (Ireland) in the industrial and engineering section. The company's exhibit consisted of a stand 30 ft. by 12 ft. with working models of two trains (scale 7 mm. to one foot), one of which was the company's "Bundoran Express" hauled by 4-4-0 2-cylinder simple engine *Errigal*, and the other a main-line Dublin-Belfast express consisting of nine coaches, kitchen car and dining saloon, and hauled by 4-4-0 3-cylinder compound engine *Eagle*. Both trains were exact models of those in service.

A double track (1¼-in. gauge), fully ballasted, made a complete circuit of the stand, one side including an exact replica of the centre span of the Boyne Viaduct; on the other side of the stand the space under the desk provided a tunnel. Particular attention had to be paid to the design of the automatic spring-loaded points, in order to avoid derailments, because of the light weight on the locomotive bogie wheels compared with that on the other wheels of the train. This was accomplished by arranging for the point blades not to move from their position until the locomotive bogie wheels had traversed at least two-thirds of their length. This naturally reduced leverage. As an additional precaution, specially arranged check rails were inserted.

A feature of interest was the flattening over the point of the frog by the impact of the wheels, exactly as occurs in real practice after heavy service.

The single-line span of the Boyne Viaduct and the approach were protected by semaphore signals worked by solenoid motors. These motors were switched on by automatic relays, which themselves were operated by the motors on the locomotives. The section at each end of the bridge was longer than the length of the trains, so that in the event of either train being blocked by the other, the locomotive of the blocked train could not start until the whole of the other train had cleared the points into the double line. The distant signals were equipped with working miniature hooters placed near "reduce speed" notices.

The reduction in speed over the Boyne Viaduct (25 m.p.h. in actual practice) was accomplished by a resistance inserted between the electric supply and the pick-up rail on this section.

On the inside of the track, landscape views were placed to add to the realism of the line. These included views of Belfast, Dublin, Howth, Drogheda, Dundalk, and other places of interest. Various stationary models were also displayed on the stand, dating from Dublin & Drogheda Railway engines and carriages of 1850, various types of Ulster railway wagons of 1860, G.N.R. single-driver express engine *Victoria*, and coaches of 1885, to present-day rolling stock, including the latest type of railcar and double-deck road omnibus. The exhibit was planned and executed by staff from the traffic, mechanical, and civil engineering departments, and the structural work was carried out in the company's shops at Dundalk. All the models were made by Mr. C. L. Fry, the well-known model engineer.

Notwithstanding a total of 450 miles run by the two trains during the exhibition, only one mechanical failure was recorded, caused by a sheared pin on the *Eagle*. Repairs took two hours. There were no electrical or signal failures, and no collisions or derailments. So far as is known, these were the heaviest model trains to work continuously round such sharp curves for exhibition purposes, as such trains do not normally exceed four bogie coaches. The locomotives operated at 10 volts and the signals at 6 volts.

*General view of the Great Northern Railway stand at the Dublin Society's show*

*A section of the working model railway, showing the Boyne Viaduct span*

# Locomotive Naming Ceremony at Euston, L.M.S.R.

As briefly recorded in our September 6 issue, on September 4 at Euston Station L.M.S.R. "Jubilee" class locomotive No. 5633 was named *Aden* by Lt.-Colonel Sir Bernard Reilly, K.C.M.G., C.I.E., O.B.E., Governor & Commander-in-Chief, Aden, 1937-40, and now in charge of Aden affairs in the Colonial Office. Sir Robert Burrows, Chairman of the L.M.S.R., who presided, said in his address of welcome that the L.M.S.R. was a believer in locomotive naming and that youthful number takers would be reminded of the colonies when they saw the locomotive *Aden*.

Sir Bernard Reilly paid a tribute to British railways, which had a glamour for him. *Aden* would now add its name to those of the "Jubilee" class engines, which already bore the names of many parts of the British Empire.

On platform 1, which was beflagged for the occasion, a dais had been erected. On the footplate were Driver A. T. W. Castle, who has been a railwayman since 1917 and has seen war service in Aden, and Fireman J. Page, both of Willesden Motive Power Depot. After he had unveiled the nameplate, which had been covered by a flag of Aden, Sir Bernard Reilly climbed into the cab and drove the locomotive out of the station.

The locomotive, which will be shedded at Longsight, Manchester, is painted in the new L.M.S.R. livery of black with maroon edging.

Those present included:—

*Colonial Office:* Messrs. J. M. Martin, C.B., C.V.O., Assistant Under-Secretary of State (in charge of Middle East affairs), Trafford Smith (Head of the Middle East Dept.), S. W. Smith, F. Farmer, and A. J. H. Haler (Press Officer).

Other guests:—

Vice-Admiral L. D. I. MacKinnon, C.B., C.V.O., Colonel C. E. Rolland, C.B.E., Lt.-Colonel Sir Gordon Neale, K.C.V.O., C.I.E., Lt.-Colonel A. R. Thomson, M.C., Commander W. Twysden, R.N., Major C. E. Harding, Messrs. J. A. Kay (Editor, *The Railway Gazette*), D. R. Lamb (Editor, *Modern Transport*), Humphrey Salwey, M.A., and Stanley Knott (Traffic Manager, G.N.R.(I.).

L.M.S.R. officers present included:—

Messrs. F. A. Pope, C.I.E., T. W. Royle, C.V.O., M.B.E., and R. A. Riddles, C.B.E. (Vice-Presidents), H. G. Ivatt (Chief Mechanical Engineer), S. H. Fisher (Chief Operating Manager), W. P. Bradbury, O.B.E. (Chief Commercial Manager), Lt.-Colonel H. Rudgard, O.B.E. (Superintendent of Motive Power), Messrs. J. O'Neill (Advertising & Publicity Officer), and W. B. Shelton (District Operating Manager, Euston).

## Diesel Engine Users' Association

The Diesel Engine Users' Association has issued its programme of papers to be read during the Session 1946-47.

*October* 17, 1946. General meeting at Caxton Hall at 2.30 p.m., when a paper on "Filtration" will be read by Mr. C. G. Vokes, A.M.I.Mech.E., A.F.R.Ae.S., M.I.A.E., M.S.A.E.

*November* 15, 1946. General meeting at Caxton Hall at 2.30 p.m.; the subject for discussion will be announced later.

*December* 19, 1946. Annual general meeting at Alliance Hall at 2.30 p.m., when there will be delivered a "Report on Heavy-Oil Engine Working Costs, 1944-45."

*January* 16, 1947. General meeting at Caxton Hall at 2.30 p.m., when a paper, "Recent Developments in Heavy-Oil Engine Lubrication," will be read by Mr. R. A. Collacott, Ph.D., B.Sc. (Eng.), A.M.I.Mech.E., A.M.I.Mar.E.

*February* 13, 1947. General meeting at Alliance Hall at 2.30 p.m., when there will be a resumed discussion on the report on heavy-oil engine working costs, 1944-45.

*March* 13, 1947. General meeting at Caxton Hall at 2.30 p.m., when a paper on "Oil-Engine Locomotives For Mines" will be delivered.

Further particulars may be obtained from the offices of the Association at 56, Victoria Street, Westminster, S.W.1.

LORD MAYOR OF BIRMINGHAM VISITS WILLIAM MCGEOCH & CO. LTD.—The Lord Mayor and Lady Mayoress of Birmingham (Alderman A. S. Giles and Mrs. Giles) recently visited the works of William McGeoch & Co. Ltd., when, in the unavoidable absence of Mr. William McGeoch, Managing Director, they were received by Major Percy McGeoch, Director, and Mrs. Percy McGeoch. Before the Lord Mayor and Lady Mayoress made a tour of the works, the departmental managers and senior members of the staff were presented to them. They also inspected the works fire brigade; and in the Switchgear Department the Lord Mayor made a presentation, on behalf of the directors, to Mr. William Barnett, who is aged 73 and has just retired after 48 years' service.

THREE L.M.S.R. CLYDE STEAMERS SOLD TO BREAKERS.—Having decided that they are unsuitable for modernisation, the L.M.S.R. has sold for breaking up, after their return from war service, three of its pre-war Clyde steamships, the paddle steamers *Queen Empress*, *Duchess of Rothesay*, and *Eagle III*. The first two have been sold to the Netherlands firm of Scheepslooperij de Kopphandel, Nieuw Lekkerland, and the third to Smith & Houston Limited, Glasgow. *Queen Empress*, 411 gross tons, built in 1912 by Murdoch & Murray, served in the R.N. in both wars; in 1943 as a minesweeper and A.A. ship she shot down two German aircraft. *Eagle III*, 442 gross tons, built in 1910 by Napier & Miller, and *Duchess of Rothesay*, 338 gross tons, built in 1895 by J. & G. Thompson, both served as minesweepers.

## Naming of L.M.S.R. "Jubilee" Class Locomotive "Aden"

*Sir Bernard Reilly, with Sir Robert Burrows, Chairman, L.M.S.R., unveiling the nameplate of L.M.S.R. locomotive, "Aden"*

*Sir Bernard Reilly in the cab of "Aden" after the ceremony*

## G.W.R. Winter Services

In the G.W.R. winter train service, which commences on October 7, there will be a 20 per cent. increase in the daily mileage run by trains, and 600 more main-line and local services on week-days and 186 on Sundays over last winter's service. Many main line and local trains in the summer service are being retained; some will be extended and others improved.

More pre-war services, main line and cross-country, are being re-introduced, and slip-coach working is being extended. Restaurant and buffet car facilities on weekdays and Sundays will be more than in the summer service. There were none last October. Buffet rail cars will run between South Wales, Gloucester, and Cheltenham.

Among the summer service and business trains retained are the up and down "Cornish Riviera" and "Torbay Express." The following services introduced earlier in the year are being retained:—

* 8.0 a.m. Birmingham to Paddington.
* 5.10 p.m. Paddington to Birmingham.
* 8.50 a.m. Paddington to Swansea.
* 2.0 a.m. Paddington to Birmingham and Wolverhampton.
* 4.25 p.m. Wolverhampton (4.50 p.m. Birmingham) to Paddington.
7.20 a.m. Plymouth to Paddington.
4.30 p.m. Paddington to Torquay line and Plymouth.
4.55 p.m. Paddington to Cheltenham.
8.0 a.m. Cheltenham to Paddington.
3.50 p.m. Cheltenham to Paddington.
11.45 a.m. Paddington to Hereford.
5.30 p.m. Malvern to Paddington.
3.45 p.m. Ruabon to Barmouth } In connection with
1.12 p.m. Barmouth to Ruabon } London services.
7.10 a.m. Wolverhampton to Bristol *via* Stratford-on-Avon.
2.15 p.m. Bristol to Wolverhampton *via* Stratford-on-Avon.

* Saturdays excepted.

In conjunction with other railway companies the following cross-country services will also be retained:—

10.25 a.m. (now 9.30 a.m.) Bradford to Torquay and Kingswear.
9.5 a.m. Kingswear (9.33 a.m. Torquay) to Bradford.
7.40 a.m. Penzance to Manchester.
9.10 a.m. Manchester to Plymouth.
12.18 p.m. Manchester to Plymouth.
9.20 a.m. Birkenhead to Bournemouth.
9.30 a.m. Bournemouth to Birkenhead.

On Sundays, the 11.10 a.m. from Paddington will be extended from Shrewsbury to Birkenhead and the 8.5 a.m., new train, from Birkenhead will form the 11.15 a.m. train from Wolverhampton to Paddington. The 6.20 p.m. Paddington to Malvern will be extended to Hereford.

Pre-war services restored on week-days include:—

7.10 p.m. Paddington to Banbury, Leamington, Birmingham, and Wolverhampton.
8.42 a.m. Wolverhampton to Oxford.
11.40 a.m. Weymouth to Paddington.
8.15 a.m. Weymouth to Bristol.
4.25 p.m. Bristol to Weymouth.
8.10 a.m. Swansea to Newcastle-on-Tyne.
9.0 a.m. Newcastle-on-Tyne to Swansea.
2.33 p.m. Portsmouth to Bristol.
3.40 p.m. Bradford-on-Avon to Portsmouth.
10.50 a.m. Didcot to Eastleigh.
9.36 a.m. Southampton to Newbury.

Improved week-day services include the following accelerations:—

8.55 a.m. Cardiff to Manchester—25 minutes quicker.
* 11.0 a.m. Milford Haven to Paddington—30 minutes quicker.
10.30 a.m. Cardiff to Portsmouth—46 minutes quicker.
4.32 p.m. Bristol to Portsmouth—34 minutes quicker.
4.35 p.m. Cardiff to Portsmouth—37 minutes quicker.
5.35 p.m. Portsmouth to Cardiff—45 minutes quicker.

The slipping of coaches from main-line trains at Bristol, Bath, Reading, and Didcot, will be continued to maintain fast services to these points, and afford accelerated services beyond. In addition, the restored 7.10 p.m. Paddington to the Midlands will carry a slip portion for Princes Risborough to give an improved evening service to Thame, Watlington, Aylesbury, and Bicester.

### Restaurant Cars

There will be a total of 50 restaurant and four buffet car services on week-days, and 16 on Sundays, serving all parts of the system. These will include new restaurant car services on the following:—

*Weekdays*
8.10 a.m. Swansea High Street to Newcastle-on-Tyne.
9.0 a.m. Newcastle-on-Tyne to Swansea High Street.

*Sundays*
11.10 a.m. Paddington to Birkenhead (to Shrewsbury).
2.55 p.m. Birkenhead to Paddington (from Shrewsbury).
10.10 a.m. Paddington to Hereford.
5.30 p.m. Hereford to Paddington.

On week-days 322 local and branch line services and 20 on Sundays will be operated by streamline diesel rail cars in the South Wales, Bristol, Cheltenham, Worcester and Midlands areas. Buffet diesel cars are to be re-introduced to provide new services on Mondays to Fridays inclusive between Newport, Cardiff, Bridgend, and Swansea, and between Cheltenham, Gloucester, Newport, Cardiff, and Swansea.

### Sleeping Cars

Sleeping car facilities will be available on the following services:—

*Weekdays*
9.50 p.m. Paddington to Penzance, first class only.
11.50 p.m. Paddington to Plymouth, first class only.
8.40 p.m. Penzance to Paddington, first class only.
9.25 p.m. Paddington to Neyland (Saturdays only), first and third class.
1.0 a.m. Paddington to Carmarthen (Saturdays excepted), first and third class.
6.50 p.m. Neyland to Paddington (car from Carmarthen), first and third class.

*Sundays*
9.50 p.m. Paddington to Penzance, first class only.
11.50 p.m. Paddington to Plymouth, first class only.
8.40 p.m. Penzance to Paddington, first class only.
1.0 a.m. Paddington to Carmarthen, first and third class.
6.20 p.m. Neyland to Paddington, first and third class.

### Seat Reservation

The system of booking seats on main-line trains will be re-introduced on the following week-day services:—

Up and down Cornish Riviera Expresses.
Up and down Torbay Expresses.
8.55 a.m. Paddington to Pembroke Dock.
11.55 a.m. Paddington to Pembroke Dock and Neyland.
3.55 p.m. Paddington to Fishguard.
8.15 a.m. Neyland to Paddington.
11.0 a.m. Milford Haven to Paddington.

* 9.10 p.m. Paddington to Weymouth Quay.
* 3.40 p.m. Weymouth Quay to Paddington.

* On Tuesdays, Thursdays, and Saturdays.

A booking fee of 1s. per seat will be made for this facility.

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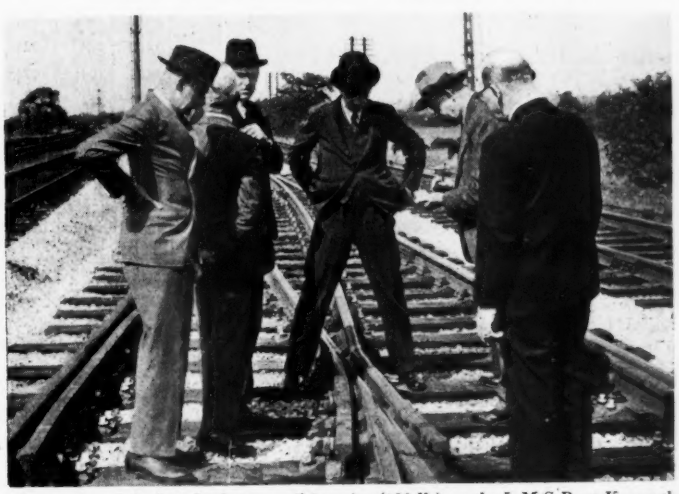
**Reinforced Concrete Street Lighting Columns.**—British Standard Specification for Reinforced Concrete Street Lighting Columns (B.S. No. 1308: 1946) has recently been issued, and forms one of a series of three specifications which is being prepared for street-lighting columns. A standard for cast-iron columns also has recently been issued (B.S. 1249), and a standard for steel columns is in course of preparation. Copies of B.S. No. 1308 are available from the Publications Department, British Standards Institution, 28, Victoria Street, London, S.W.1 (price 2s).

**Underground Platforms Restored at Kings Cross.**—London Transport is rebuilding two blitzed platforms beside the Inner Circle at Kings Cross for the exclusive use of L.N.E.R. and L.M.S.R. Moorgate suburban trains. When the work is completed passengers on these trains over the "widened lines" to Moorgate will once again be able to alight at Kings Cross. The Inner Circle and "widened lines" platforms were put out of action in an air raid on the night of October 16, 1940. Before the war London Transport already had begun building new platforms for Metropolitan and Inner Circle trains a few hundred yards west, and nearer to the new Underground ticket hall and station serving the Piccadilly and Northern Lines. This new station was opened on March 31, 1941, but the damaged platforms of the old Metropolitan and "widened lines" station have remained closed ever since. L.N.E.R. trains to Moorgate already have resumed running without stopping at Kings Cross (Metropolitan) and it is hoped that restoration of the platforms will be complete in time for the resumption of the L.M.S.R. service planned for October 7.

### Flat-Bottom Rail Junction at Kegworth, L.M.S.R.



*Inspection of the first flat-bottom rail junction (113 lb.) on the L.M.S.R. at Kegworth by (left to right) Messrs. C. J. Chaplin, District Engineer, Derby (South); M. W. Swinnerton, Assistant to Chief Civil Engineer (Permanent Way); R. A. Riddles, Vice-President, L.M.S.R.; W. K. Wallace, Chief Civil Engineer, Watford; Colonel A. K. Frazer, Deputy Chief Engineer, New South Wales Government Railways; and L. Taylor, of Taylor Bros. (Sandiacre) Ltd., the makers*

# Notes and News

**District Traffic Manager Required.**—A district traffic manager is required by the Sudan Railways for service in the Sudan. Experience in the traffic operation of an air service is essential, as is a railway training. For full particulars see Official Notices on page 311.

**L.N.E.R. Silloth Dock (Increase of Charges) Order.**—The Minister of Transport on August 22 made the London & North Eastern Railway—Silloth Dock—(Increase of Charges) Order, 1946. Copies may be obtained from the Ministry of Transport, Berkeley Square House, London, W.1.

**Chief Production Engineer Required.**—A chief production engineer is required for the Chief Mechanical Engineer's Department of the London & North Eastern Railway. Candidates, not over 45 years, must be highly qualified and hold executive positions in the engineering industry. See Official Notices on page 311.

**Chief Cost and Works Accountant Required.**—A chief cost and works accountant is required by the London & North Eastern Railway for the Chief Accountant's Department. Candidates, not over 40 years, must be qualified and hold responsible executive positions in industry. For further details see Official Notices on page 311.

**Railway Signalling Engineer Required.**—A railway signalling engineer, aged 28-40 years, is required by the Siemens & General Electric Railway Signal Co. Ltd. Candidates must have a knowledge of modern railway signalling theory and practice, particularly of power systems, and experience in quantity estimating. See Official Notices on page 311.

**Vacancies on the Burma State Railways.**—The Burma State Railways are in urgent need of civil engineers (senior and junior), mechanical engineers, and railway signal engineers. Candidates should be British subjects aged preferably between 25 and 40, and, among other things, should possess an engineering degree or equivalent qualifications. For full particulars of these vacancies see Official Notices on page 311.

**Three Taxi Ranks for Waterloo Station.**—The Southern Railway states that, on and from September 16, the pre-war arrangement of dealing with taxicabs at Waterloo Station will be resumed. Three ranks of cabs will operate, from the following points:—(*a*) In the centre cab road between Nos. 11 and 12 platforms; (*b*) near the News Theatre, adjacent to No. 1 platform; (*c*) outside the Victory Arch, opposite platforms Nos. 16 and 21. The present system of a queue in front of the station will be discontinued.

**Exhibition of Aircraft Equipment.**—The prominent position achieved by the British Thomson-Houston Co. Ltd., Rugby, in the development of electrical equipment for aircraft is emphasised by its display at an exhibition which the Society of British Aircraft Constructors is now holding at Radlett. The extensive range of B.T.H. magnetos is represented by numerous exhibits, many of which are shown in section, and there are also shown high-pressure air compressors, actuators, booster coils, a wide range of electric motors, and a variety of switches and control devices. Alternators and generator sets, etc., are exhibited for radar work. A new development in the form of Mazda fluorescent lighting for cabin interiors is featured on the B.T.H. stand, and also a display of Mazda aircraft lamps for landing, navigation, and interior lighting.

**Bill for New Branch in Quebec Province.**—The Canadian House of Commons gave third reading on August 16 to a Bill authorising the Canadian National Railways to build a 55-mile branch from Barraute to Kiask Falls on the Bell River in the Abitibi district of Quebec. One of the chief functions of the railway, which would serve some 75,000 persons in the area, would be the carrying of pulpwood cut for the Canada Paper Company.

**Wage Increases in Ontario.**—Ontario Northland Railway freight-handlers and office workers affiliated with the Canadian Brotherhood of Railway Employees have accepted a wage increase of 10 cents an hour as stipulated by the Canadian War Labour Board. The union had applied for a wage rise of 20 to 25 per cent. and a 40-hr. week. The increase, retroactive to June 1, 1946, is payable to almost 500 O.N.R. employees; the request for a 40-hr. week has not been granted.

**Naming of Southern Railway Pacifics.**—Of the 35 Southern Railway "West Country" class engines so far in service, 18 have now been named. During the last week in August, the Chairman of the company, Colonel Eric Gore Browne, D.S.O., accompanied by the General Manager, Sir Eustace Missenden, O.B.E., and other chief officers, visited Lyme Regis, Bodmin, Bideford, Ilfracombe, and Barnstaple, after which towns five further engines were named by the respective mayors.

**Unions to Discuss Railway "Closed Shop."**—At the Trades Union Congress at Brighton next month, it is thought likely that the "closed shop" for railway workers may be discussed. The National Union of Railwaymen is stated to have asked the main-line companies and the L.P.T.B. to discuss the question of making membership of an affiliated trade union a condition of employment. This action has followed a resolution passed by the N.U.R. Annual Conference in July this year, which called for an immediate application to the railways that trade union membership should be a condition of employment as from June 9, 1947.

**Austrian Railways Increase Freight Charges.**—The Control Office for Germany and Austria states that now the Austrian railway system has been almost completely restored to working order, it has been found necessary to revise the rates for goods traffic. This will help to meet the deficit which the railways are facing as a result of the increased running costs. Increases of up to 87 per cent. for distances of under 55 miles, and between 55 per cent. and 86 per cent. for longer distances, are envisaged in a proposal submitted by the railway authorities to the Austrian Government. These increases will bring the freight rates in Austria into line with those of neighbouring European countries, and will cover the whole period of Austrian reconstruction.

**Merz & McLellan (India).**—Merz & McLellan announces that, due to the growing importance of its work in India, it has felt it desirable to arrange for the establishment of a separate associated firm to undertake consulting engineering work in British India. The new firm is practising under the title of Merz & McLellan (India), at 16, Lee Road, Calcutta (telegrams: Ambercal, Calcutta; telephone: PK. 1996). The partners are the present partners in Merz & McLellan and Mr. Felix Henry Sharpe, who has been its Chief Engineer & Manager in India for some years.

**John Fowler & Co. (Leeds) Ltd. Publicity Appointments.**—Mr. Norman R. A. Biles, A.M.I.A.E., A.R.Ae.S., M.I.S.A.C., M.I.A.M.A., has resigned his position as Publicity Manager, Blackburn Aircraft Limited, to take up a post in a similar

# British and Irish Railway Stocks and Shares

| Stocks | Highest 1945 | Lowest 1945 | Prices Sept. 10, 1946 | Prices Rise/Fall |
|---|---|---|---|---|
| **G.W.R.** | | | | |
| Cons. Ord. ... ... | 60⅜ | 47½ | 55 | – ½ |
| 5% Con. Pref. ... | 124½ | 104½ | 112½ | – |
| 5% Red. Pref. (1950) | 107½ | 101½ | 104½ | + 1 |
| 5% Rt. Charge ... | 137½ | 120 | 127½ | – |
| 5% Cons. Guar. ... | 135½ | 117 | 121½ | – |
| 4% Deb. ... ... | 118 | 106 | 114 | – ½ |
| 4½% Deb. ... ... | 119½ | 108 | 116½ | – |
| 4½% Deb. ... ... | 124½ | 111½ | 122 | – |
| 5% Deb. ... ... | 138 | 124 | 133½ | – |
| 2½% Deb ... ... | 83 | 74½ | 89½ | + 1 |
| **L.M.S.R.** | | | | |
| Ord. ... ... ... | 33 | 23½ | 26½ | – ½ |
| 4% Pref. (1923) ... | 65 | 50 | 52½ | – 1 |
| 4% Pref. ... ... | 80⅜ | 69½ | 74½ | – 1 |
| 5% Red. Pref. (195 ) | 106½ | 99½ | 102½ | – |
| 4% Guar. ... ... | 106½ | 97 | 101 | + ½ |
| 4% Deb. ... ... | 110½ | 102 | 108 | – |
| 5% Red. Deb. (1952) | 110½ | 103½ | 106½ | – |
| **L.N.E.R.** | | | | |
| 5% Pref. Ord. ... | 8½ | 5½ | 5 | – ½ |
| Def. Ord. ... ... | 4½ | 2½ | 2½ | – ½ |
| 4% First Pref. ... | 62½ | 49½ | 50½ | – 1 |
| 4% Second Pref. ... | 33½ | 24½ | 26 | – ½ |
| 5% Red. Pref. (1955) | 103 | 96 | 99 | – |
| 4% First Guar. ... | 104½ | 95 | 99 | + ½ |
| 4% Second Guar. ... | 97 | 89½ | 94½ | – |
| 3% Deb. ... ... | 91⅜ | 82⅛ | 94½ | + ½ |
| 4% Deb. ... ... | 109½ | 101 | 108 | – |
| 5% Red. Deb. (1947) | 103½ | 100 | 100 | – |
| 4½% Sinking Fund Red. Deb. ... ... | 106⅜ | 103 | 105½ | – |
| **SOUTHERN** | | | | |
| Pref. Ord. ... ... | 79½ | 63 | 71 | – |
| Def. Ord. ... ... | 27 | 20⅛ | 20½ | – ½ |
| 5% Pref. ... ... | 124½ | 104 | 109½ | – |
| 5% Red. Pref. (1964) | 117 | 107 | 109½ | – |
| 5% Guar. Pref. ... | 135⅜ | 117 | 122½ | – |
| 5% Red. Guar. Pref. (1957) ... ... | 117 | 106½ | 111½ | – |
| 4% Deb. ... ... | 117 | 104½ | 112 | – |
| 5% Deb. ... ... | 137 | 124 | 132½ | + 1 |
| 4% Red. Deb. (1962-67) ... ... ... | 112 | 104½ | 109½ | – |
| 4% Red. Deb. (1970-80) ... ... ... | 113½ | 104 | 109½ | – |
| **FORTH BRIDGE** | | | | |
| 4% Deb. ... ... | 106 | 103 | 106 | – |
| 4% Guar. ... ... | 106 | 101 | 103 | – |
| **L.P.T.B.** | | | | |
| 4½ "A" ... ... | 125 | 117 | 125½ | – |
| 5% "A" ... ... | 135 | 127 | 134½ | – |
| 3% Guar. (1967-72) | 100 | 97½ | 105 | + ½ |
| 5% "B" ... ... | 125½ | 115 | 120½ | – |
| "C" ... ... | 70 | 58 | 60½ | – 1 |
| **MERSEY** | | | | |
| Ord. ... ... ... | 37 | 31½ | 30 | – |
| 3% Perp. Pref. ... | 72½ | 68½ | 73 | + 1½ |
| 4% Perp. Deb. ... | 104½ | 104 | 106 | + 1 |
| 3% Perp. Deb. ... | 84 | 78½ | 82½ | – |
| **IRELAND* BELFAST & C.D.** | | | | |
| Ord. ... ... ... | 8⅛ | 6 | 7½ | – |
| **G. NORTHERN** | | | | |
| Ord. ... ... ... | 34 | 24½ | 40 | – |
| Pref. ... ... ... | 52½ | 42½ | 60½ | – |
| Guar. ... ... | 80 | 68 | 92 | + ½ |
| Deb. ... ... ... | 97½ | 87½ | 105 | – |
| **IRISH TRANSPORT** | | | | |
| Common ... ... | — | — | 18/6 | – 6 |
| 3% Deb. ... ... | — | — | 103½ | – ½ |

* Latest available quotation

# OFFICIAL NOTICES

### Burma State Railways

URGENT vacancies exist for (*a*) Civil Engineers (Senior and Junior); (*b*) Mechanical Engineers, and (*c*) Railway Signal Engineers in the Burma and Railways. Candidates should be British subjects aged preferably between 25 and 40, and should possess an Engineering degree or equivalent qualifications, plus the following: For (*a*) at least seven years' (Senior) and two years' (Junior) practical experience on Civil Engineering Works. For some of the Senior posts experience of railway maintenance is essential, and this would be an advantage for the other posts; (*b*) apprenticeship or pupilage with a main-line railway and at least two years' subsequent experience in the Locomotive or Carriage and Wagon Departments; (*c*) experience in Electrical and Mechanical Interlocking and Block Telegraph Instruments and Telephones.

Contract for 3 years. Salary, at flat rate throughout and fixed according to age on appointment, from Rs.850 a month for age 25 (£765 a year) to Rs.1,700 a month for age 40 (£1,530 a year). Free passage to and from Burma and for families should conditions permit. Bonus on satisfactory termination of contract of £100 or £150 (depending on salary) for each year's service. Free medical attention.

Further particulars and forms of application may be had on request (by postcard) from the Office of the High Commissioner for India, India House, Aldwych, London, W.C.2. Last date for the receipt of applications, October 12, 1946.

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THE Hunslet Engine Co. Ltd., Leeds, are urgently requiring the services of Senior Draughtsmen. Men with Locomotive experience preferred but not essential provided applicants can satisfy requirements. Prospects of continuous work with good working conditions and canteen facilities.—Apply, 125, Jack Lane, Leeds 10.

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A CHIEF COST AND WORKS ACCOUNTANT is required for the Chief Accountant's Department of the London & North Eastern Railway. The responsibilities include the supervision of the accounting and costing throughout the Works controlled by the Chief Mechanical Engineer. Candidates must be qualified and hold responsible executive positions in industry. A knowledge of Budgetary Control and Standard Costs and some experience in the engineering industry is desirable. Age not over 40 years. Commencing salary, £1,500 per annum. Superannuation benefits.

Applications must give age and full details of education, qualifications, experience, positions held and salaries earned. They should be addressed to Robson, Morrow & Company, 59, Cavendish Street, London, W.1.

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A CHIEF PRODUCTION ENGINEER is required for the Chief Mechanical Engineer's Department of the London & North Eastern Railway. The responsibilities include assisting the Chief Mechanical Engineer in the supervision of the Works concerned with the building and repairing of locomotives, carriages and wagons. Candidates must be highly qualified and hold executive positions in the engineering industry. Age not over 45 years. Commencing salary, £2,000 per annum. Superannuation benefits.

Applications must give age and full details of education, qualifications, experience, positions held and salaries earned. They should be addressed to Robson, Morrow & Company, 59, New Cavendish Street, London, W.1.

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SECTIONED PERSPECTIVE VIEW OF LOCOMOTIVE FRONT END. A notable drawing of L.M.S.R. class "7P" 4-6-2 locomotive of the latest type. Reprinted from *The Railway Gazette*, June 15, 1945. *Price 2s. 6d. Post free 2s. 8d.*

### Sudan Government

SUDAN RAILWAYS require a District Traffic Manager for service in the Sudan. The selected candidate will be responsible to the Traffic Manager for a recently instituted Air and Road Service. Experience in the traffic operation of an air service is essential, as is a railway training. Experience in road mechanical transport would be an additional qualification. The minimum educational standard is Higher School Certificate. Age 25 to 35. Provident Fund Contract starting at £E.560 per annum with periodic increments to £E.1,100 (£E.1 = £1 0s. 6d.).

A cost-of-living allowance at the rate of 35 per cent. of pay is at present payable on all salaries up to £E.1,200 per annum, subject to a maximum of £E.15 per month. Outfit allowance of £E.60 payable on appointment if starting salary does not exceed £E.700. There is, at present, no Income Tax in the Sudan. Free passage on appointment. Strict medical examination.

Papers containing full information, and application form, are obtainable from the Sudan Agent in London, Wellington House, Buckingham Gate, London, S.W.1, marking envelopes "District Traffic Manager."

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RAILWAY SIGNALLING. Technical Engineer. Age 28-40 years. General Education of Matriculation Standard. Must have knowledge of modern railway signalling theory and practice, particularly of power systems, and experience in quantity estimating. Must also be able to prepare interlocking and control tables and draft electrical circuits, and be capable of testing installation wiring. Applicants should apply in writing, giving age, training, experience, and salary required, to the Siemens & General Electric Railway Signal Co. Ltd., East Lane, Wembley.

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capacity with John Fowler & Co. (Leeds) Ltd. Mr. Biles was with G. & J. Weir Limited before joining Blackburn Aircraft, and had also served with the firm of Petters Limited.

**Batch-Type Concrete Mixers.**—British Standard Specification for Batch-Type Concrete Mixers (B.S. No. 1305: 1946) has recently been issued. Copies are available from the Publications Department, British Standards Institution, 28, Victoria Street, London, S.W.1 (price 2s.).

**Pig Iron and Steel Production in July.**—The table below shows pig iron and steel production in the United Kingdom in July, 1946, with previous figures for comparison:—

**STEEL INGOTS AND CASTINGS**

(tons)

| | 1945 | | 1946 | |
|---|---|---|---|---|
| | Weekly average | Annual rate (000s omitted) | Weekly average | Annual rate (000s omitted) |
| 1st quarter ... | 233,200 | 12,126 | 242,600 | 12,617 |
| 2nd quarter ... | 227,200 | 11,814 | 252,100 | 13,111 |
| July ... ... | 213,800 | 11,118 | 226,000 | 11,759 |

**PIG IRON**

(tons)

| | 1945 | | 1946 | |
|---|---|---|---|---|
| | Weekly average | Annual rate (000s omitted) | Weekly average | Annual rate (000s omitted) |
| 1st quarter ... | 134,500 | 6,992 | 145,500 | 7,566 |
| 2nd quarter ... | 132,600 | 6,894 | 150,500 | 7,827 |
| July ... ... | 134,800 | 7,010 | 147,000 | 7,645 |

**London Transport Grit Removal Plant.**—An order has been placed by London Transport for a grit removal plant for installation at Neasden generating station. It will consist of a vacuum cleaning plant capable of conveying 3 tons of grit an hour from the various extractors to a central receiving hopper with a capacity of 10 tons. The vacuum will be produced by a 30 h.p. electrically-driven exhauster, permanently connected by steel piping to each of the 24 existing extraction points, each of which will be equipped with a suitable operating valve. The exhauster, receiving hopper, and filter for cleaning the discharged air will be under cover, adjacent to an existing water-sluicing system which already conveys ashes to a settling pit outside the station. When the plant is in operation each extraction device will be emptied at will merely by opening the air-control valve. The grits then will be withdrawn and conveyed direct to the receiving hopper, from which they will pass through the water sluicing system to the ash settling pit. Here, after mixing with the normal ash production of the station, they will be removed by existing grabs and loaded into wagons.

**Hurst, Nelson & Company.**—Net profit for the year was £52,415, as against £32,637 for last year. An ordinary dividend of 15 per cent. has been declared.

**Scottish Machine Tool Corporation Limited.**—At the annual general meeting of the Scottish Machine Tool Corporation Limited, the Chairman, Sir Harry Greer, D.L., stated that further relaxation of control had enabled orders from home or export buyers to be accepted without authority of the Ministry of Supply. At least 50 per cent. of the present orders were for delivery to Continental and overseas customers. After setting aside £46,000 for income tax and excess profits tax, the directors recommended a final dividend of 5 per cent., less tax, which made, with the interim dividend already paid, 8 per cent. for the year.

**British Timken Limited.**—Mr. Michael Dewar, chairman of British Timken Limited, at the annual general meeting of the company held recently in Birmingham, said that nationalisation of the steel industry would probably cause an increase in the price of all the company's raw materials and make it less able to compete in foreign markets. Nationalisation would do away with the individuality of the principal alloy steel producers and would destroy that competitive keenness which was so vital if the country was to remain in the forefront in steel technology. The changeover from war to peace conditions had been of considerable magnitude. With the end of the war in sight, the board had taken immediate steps to plan the changeover from the large sizes of bearings used in air propellers, tanks, and other weapons of war to those smaller sizes used in civilian applications. This period of change had emphasised the impossibility of satisfactory control of business by bureaucracy. The essence of bureaucratic control was for every Government Department to be consulted, whereas, in business, decisions had to be made quickly and without months of delay.

**The Railway Convalescent Home, Buxton.**—On September 20 Sir Robert Burrows, Chairman of the L.M.S.R., and President of the Railway Convalescent Homes, will take the chair at the opening of the Railway Convalescent Home, Buxton. The Home is the gift of the American Federation of Labour and the Congress of Industrial Organisations, on behalf of which Mr. Paul Felix Warburg, of the American Embassy, will hand over the title deeds of the property. The Rt. Rev. the Lord Bishop of Derby will dedicate the Home.

**Improved Ventilation for London Transport Tubes.**—London Transport is to instal four powerful fans, each capable of moving 45,000 cu. ft. of air, at intervals along the four miles of new tunnelling between Liverpool Street and Stratford, the first section of the eastern extension of the Central Line which will be opened in December. Part of a new ventilating system which has been evolved as a result of innumerable tests and experiments carried out during the war, including recording on delicate instruments the temperatures of the clay surrounding the tunnels, they will be kept running continuously and with the minimum of draughts will provide a steady change of air at a constant temperature in the tunnels and stations at the rate of 180,000 cu. ft. a minute. On the 100 miles of tube tunnels in London at present in use, existing ventilation plants, which draw in fresh air at the rate of 4 million cu. ft. a minute, are being overhauled gradually and additional fans are being provided to improve the ventilation throughout the underground system.

## Forthcoming Meeting

September 21 (*Saturday*).—The Permanent Way Institution (London Section). Visit to Chislet Colliery, Kent.

# Railway Stock Market

Stock markets have been perplexed by the Wall Street slump and by conflicting opinions of the underlying reason for this movement. Jobbers took the precautionary course of marking down prices in most sections, leading industrials being particularly vulnerable, although earlier declines were partly regained, and heaviest falls were recorded among speculative mining shares, notably the O.F.S. group.

As the lower prices failed to bring out any large amount of stock, markets became somewhat steadier, although it was apparent that buyers were holding off, awaiting international and Wall Street developments. In contrast, British Funds showed notable firmness, with fractional gains, partly because of indications that the Government aims at consolidating its cheaper money policy, and partly in anticipation of reinvestment demand arising from repayment of the £60 millions of National Defence Bonds at 2½ per cent. (1944-48).

General declines have been recorded in Imperial Chemical, Dunlop Rubber, Courtaulds and other industrial leaders which usually move closely with the market trend. On the other hand, iron and steels remained steady with a number of small gains, the assumption persisting that nationalisation of the industry will be postponed until at least 1948. Colliery shares were also favoured, partly on break-up value estimates, and partly on expectation that dividend announcements during the next few months will show increases over the conservative payments of the war years.

Home rails were relatively steady with some of the prior charges inclined to strengthen as a result of the trend in gilt-edged stocks. Later, however, absence of buyers was reflected by an easier tendency among junior stocks, pending any fresh news regarding the anti-nationalisation programme.

There seems to be no reason to assume that the developments in connection with iron and steel indicate that there is to be a general slowing down of the Government's nationalisation programme. Indeed, there is an impression that the Government may clarify its future intentions during the next few months. Meanwhile, considerable difference of opinion persists as to what should constitute a fair compensation basis for home railway junior stocks.

Nevertheless, it would appear that a strong case can be made out for fair compensation which would justify prices well above those now current, and it can be expected this would be stressed by the companies at the opportune time.

Argentine rails have continued to fluctuate sharply in accordance with conflicting reports regarding the Anglo-Argentine negotiations. After rallying strongly on reports that resumption of the "talks" would be on a broader basis and would include the railways, prices fell back sharply on rumours of a further deadlock. Debentures as well as ordinary and preference issues moved back sharply, although not a great deal of stock has changed hands. It would appear that the great majority of holders are inclined to hopefulness on the assumption that, whatever the outcome of the talks, current prices are likely to prove undervaluations if more than a very short view be taken.

Among home rails, Great Western has receded to 55, compared with 55¾ a week ago; but the 5 per cent. preference at 112½ was fractionally better, the guaranteed stock remaining at 122 and the 4 per cent. debentures at 114. L.M.S.R. was no better than 26¼, a decline of ¼ on balance, and the senior preference lost a point at 74½, as did the 1923 preference at 52½; although the 4 per cent. debentures held their improvement to 108 and the guaranteed stock was 101.

L.N.E.R. second preference receded to 26, comparing with 26½ a week ago, and the first preference at 50½ was a point lower. Southern deferred at 20¼, however, kept within ⅛ of the level a week ago, but the preferred declined to 70½, and the 5 per cent. preference at 109½ was also ½ lower, although the 4 per cent. debentures remained at 112. London Transport "A" and "B" stocks remained steady; the "C" (60½) lost ½ of its recent rise.

In the Argentine section, Buenos Ayres Great Southern has fallen back from 12½ to 12, the 5 per cent. preference from 27½ to 27, and the 4 per cent. debentures were two points down at 69. Central Argentine receded from 9¼ to 8, and the 4 per cent. debentures from 67½ to 64. Buenos Ayres Western was 14½, compared with 15½ a week ago; the 4 per cent. debentures at 66 lost three points. Buenos Ayres & Pacific ordinary was ¾ lower at 7¼, with the 1912 debentures no better than 45, a decline of two points. Elsewhere, Central Uruguay second debentures have come back from 33 to 29 and the ordinary stock from 8¾ to 7. San Paulo was 49, compared with 50 a week ago, but United of Havana 1906 debentures held their improvement to 16½. French railway sterling bonds tended to strengthen. In other directions, Canadian Pacifics have fallen to 20, reflecting the general trend in dollar stocks and the Wall Street slump.

## Traffic Table and Stock Prices of Overseas and Foreign Railways

| | Railways | Miles open | Week ended | Traffic for week: Total this year | Traffic for week: Inc. or dec. compared with 1944/5 | No. of Week | Aggregate traffics to date: Totals 1946/7 | Aggregate traffics to date: Totals 1945/6 | Aggregate traffics to date: Increase or decrease | Shares of Stock | Prices: Highest 1945 | Prices: Lowest 1945 | Prices: September 10, 1946 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | £ | £ | | £ | £ | £ | | | | |
| South & Central America | Antofagasta | 834 | 1.9.46 | 34,390 | + 4,110 | 35 | 1,124,130 | 1,045,240 | + 78,890 | Ord. Stk. | 12 | 8½ | 9¼ |
| | Arg. N.E. | 753 | 31.8.46 | ps.305,000 | — ps. 37,400 | 9 | ps.2,809,800 | ps.2,780,600 | + ps.29,200 | ,, | 10 | 5½ | 7½ |
| | Bolivar | 174 | Aug., 1946 | 3,995 | — 1,040 | 35 | 34,095 | 39,437 | — 5,342 | 6 p.c. Deb. | 8½ | 5½ | 6½ |
| | Brazil | — | — | — | — | — | — | — | — | Bonds | 25 | 17 | 26½ |
| | B.A. Pacific | 2,771 | 31.8.46 | ps.2,000,000 | + ps. 36.000 | 9 | ps. 19,013,000 | ps.17,828,000 | + ps.1,185,000 | Ord. Stk. | 7 | 5 | 7 |
| | B.A.G.S. | 5,080 | 31.8.46 | ps.2,714,000 | — ps.893,000 | 9 | ps. 28,917,000 | ps.28,073,000 | + ps.844,000 | Ord. Stk. | 13⅜ | 10¼ | 11½ |
| | B.A. Western | 1,924 | 31.8.46 | ps.1 257,000 | — ps.237.000 | 9 | ps. 10,668,000 | ps.9,765,000 | + ps.903,000 | ,, | 12¼ | 9¼ | 14½ |
| | Cent. Argentine | 3,700 | 31.8.46 | ps.3,252,340 | + ps. 46 340 | 9 | ps. 27,939,395 | ps.27.308.250 | + ps. 631.145 | ,, | 9¼ | 7 | 7½ |
| | Do. | — | — | — | — | — | — | — | — | Dfd. | 5 | 2⅜ | 4 |
| | Cent. Uruguay | 970 | 31.8.46 | 35,433 | + 1,666 | 9 | 313,266 | 314,384 | — 1,118 | Ord. Stk. | 7½ | 4 | 6½ |
| | Costa Rica | 262 | June, 1946 | 31,811 | — 4,213 | 52 | 351,042 | 295.175 | + 55,867 | Stk. | 16½ | 13 | 12 |
| | Dorada | 70 | June, 1946 | 35,600 | + 1,820 | 27 | 186,275 | 182,375 | + 3,900 | 1 Mt. Deb. | 103 | 102 | 102½ |
| | Entre Rios | 808 | 31.8.46 | ps.433,000 | + ps.16,100 | 9 | ps.3,819,700 | ps. 3,832,000 | — ps. 12,500 | Ord. Stk. | 7½ | 4½ | 6½ |
| | G.W. of Brazil | 1,030 | 31.8.46 | 25,900 | + 4,600 | 35 | 954,600 | 853 500 | + 101,100 | Ord. Stk. | 30/- | 23/6 | 22/6 |
| | Inter. Ctl. Amer. | 794 | June, 1946 | $814,722 | + $12.606 | 26 | $6,472,238 | $5,532,507 | + $939,731 | — | — | — | — |
| | La Guaira | 22¾ | Aug., 1946 | 6,322 | + 109 | 35 | 46 020 | 49,503 | — 3,483 | 5 p.c. Deb. | 78 | 70 | 58 |
| | Leopoldina | 1,918 | 31.8.46 | 78,705 | + 21,274 | 35 | 2 029.174 | 1,757,411 | + 271,763 | Ord. Stk. | 4¼ | 3½ | 3¼ |
| | Mexican | 483 | 31.5.46 | ps.1,464,000 | + ps.459.100 | 22 | ps.18,661.800 | ps.13.441,600 | + ps.5,220,200 | Ord. Stk. | ¼ | ¼ | ¼ |
| | Midland Uruguay | 319 | July, 1946 | 18,824 | — 906 | 5 | 18.824 | 19,730 | — 906 | — | — | — | — |
| | Nitrate | 382 | 31.8.46 | 9,420 | — 1,107 | 35 | 144,782 | 122.322 | + 22,460 | Ord. Sh. | 75/6 | 67/6 | 73 9 |
| | N.W. of Uruguay | 113 | July, 1946 | 4.575 | — 1,517 | 2 | — | — | — | — | — | — | — |
| | Paraguay Cent. | 274 | 30.8.46 | £53,585 | — £6 220 | 9 | £542.970 | £575.583 | — £32,613 | Pr.Li.Stk. | 79¾ | 77 | 73½ |
| | Peru Corp. | 1,059 | Aug., 1946 | 169,782 | + 21.329 | 9 | 320.684 | 283.203 | + 37,481 | Pref. | 10⅜ | 7¾ | 10½ |
| | Salvador | 100 | 30.8.46 | c 80,000 | — c 11,000 | 4 | c1,597.450 | c 1,511,000 | + c 86,450 | — | — | — | — |
| | San Paulo | 153½ | — | — | — | — | — | — | — | Ord. Stk. | 60¾ | 50½ | 47½ |
| | Taltal | 156 | Aug., 1946 | 3.255 | + 840 | 9 | 7 050 | 4,200 | + 2.850 | Ord. Sh. | 17/- | 10/6 | 18/9 |
| | United of Havana | 1,301 | 31.8.46 | 54,964 | + 14,138 | 9 | 495.833 | 414.427 | + 81.406 | Ord. Stk. | 3 | 1 | 1⅞ |
| | Uruguay Northern | 73 | July, 1946 | 1.098 | — 834 | 5 | 1,098 | 1,932 | — 834 | — | — | — | — |
| Canada | Canadian National | 23,535 | July, 1946 | 8 611,250 | — 1,350,000 | 27 | 55,150.500 | 63.428.500 | — 8,278,000 | — | — | — | — |
| | Canadian Pacific | 17,037 | 31.8.46 | 2,086.500 | — 26.250 | 35 | 47,182.000 | 52,624.750 | — 5.442.750 | Ord. Stk. | 24 | 14⅜ | 19½ |
| Various | Barsi Light† | 202 | Aug., 1946 | 19,605 | + 442 | 22 | 129,315 | 114,652 | + 14,663 | Ord. Stk. | 131 | 123 | 114 |
| | Beira | 204 | June, 1946 | 78,908 | — 1,361 | 34 | 676,166 | 693,407 | — 17,241 | — | — | — | — |
| | Egyptian Delta | 607 | 31.7.46 | 19,446 | + 1,759 | 16 | 201,088 | 196,080 | + 5,008 | Prf. Sh. | 10 | 8½ | 5 |
| | Manila | — | — | — | — | — | — | — | — | B. Deb. | 71 | 55½ | 65½ |
| | Mid. of W. Australia | 277 | Jul -, 1946 | 14,495 | + 729 | 4 | 14,495 | 13,766 | + 729 | Inc. Deb. | 97½ | 85 | 75 |
| | Nigeria | 1,900 | June, 1946 | 441,797 | + 167,749 | 14 | 1,120,904 | 837,609 | + 283,295 | — | — | — | — |
| | Rhodesia | 2,445 | June, 1946 | 533,593 | + 10,968 | 34 | 4,600,381 | 4,510.817 | + 89,564 | — | — | — | — |
| | South African | 13,323 | 10.8.46 | 1,069,470 | + 73,834 | 19 | 20 829,087 | 18,724,487 | + 2 104.600 | — | — | — | — |
| | Victoria | 4,774 | May, 1946 | 1,351,280 | + 4,246 | — | — | — | — | — | — | — | — |

† Receipts are calculated at 1s. 6d. to the rupee